

OHIO UNIVERSITY BULLETIN



GRADUATE COLLEGE

Part - I General Information

1966-67 and 1967-68



Robert E. Thacker

OHIO UNIVERSITY BULLETIN

GRADUATE COLLEGE

Part I—General Information

1966-67 and 1967-68

OHIO UNIVERSITY • ATHENS

The general policies and regulations contained herein governing graduate study are applicable during the 1966-67 academic year. The fees and certain other particulars (as indicated) relating to the quarter system are effective with the *Fall Quarter*, 1967. All are necessarily subject to change without notice at the discretion of the University.

Prospective students are invited to write to the chairman of the departmental graduate committee of their interest for information about courses, programs, departmental facilities, etc.

PART II of the Graduate Bulletin, containing course descriptions and regulations based on the quarter system, will be available in the late spring, 1967.

The student should assume responsibility for knowing Graduate College regulations and for complying with current procedures.

CONTENTS

ADMINISTRATION	4
University	4
Graduate College	5
CALENDAR	6
GENERAL INFORMATION.....	8
Profile of Ohio University.....	8
Facilities and Services.....	8
Recreational and Cultural Activities.....	9
Living Arrangements	10
ADMISSION, FEES, AND REGULATIONS.....	12
Admission	12
Fees	12
Classification of Students.....	13
General Regulations.....	14
Academic Regulations.....	15
FINANCIAL AIDS.....	17
THE GRADUATE PROGRAM.....	19
The Masters Degree.....	19
The Doctor of Philosophy Degree.....	21
MAJOR FIELDS OF GRADUATE STUDY.....	23

ADMINISTRATIVE OFFICERS OF THE UNIVERSITY

VERNON R. ALDEN, M.B.A., LL.D., L.H.D., *President of the University*

THOMAS S. SMITH, Ph.D., *Vice President for Academic Affairs*

MARTIN L. HECHT, B.S.C., *Vice President for University Development*

JAMES J. WHALEN, Ph.D., *Vice President*

LUVERNE F. LAUSCHE, B.S.M.E., *Business Manager*

JOHN F. MILAR, M.B.A., *Treasurer*

ADMINISTRATIVE OFFICERS IN THE COLLEGES AND DIVISIONS

THE UNIVERSITY COLLEGE -----Gaige B. Paulsen, Ph.D., *Dean*

THE COLLEGE OF ARTS AND SCIENCES ----George R. Klare, Ph.D., *Dean*

THE COLLEGE OF BUSINESS ADMINISTRATION -----Harry F. Evarts,
D.B.A., *Dean*

THE SCHOOL OF JOURNALISM -----Loren H. Hortin, A.M., Litt.D., *Director*

THE COLLEGE OF EDUCATION -----Gilford W. Crowell, Ed.D., *Dean*

THE SCHOOL OF HOME ECONOMICS -----Beulah E. Sellers, Ph.D., *Director*

THE COLLEGE OF ENGINEERING AND TECHNOLOGY -----
Robert L. Savage, Ph.D., *Dean*

THE COLLEGE OF FINE ARTS -----Jack S. Morrison, Ph.D., *Dean*

THE SCHOOL OF ARCHITECTURE -----James I. Clark, Ph.D., *Director*

THE SCHOOL OF DRAMATIC ART AND SPEECH ----Claude E. Kantner, Ph.D.,
Director

THE SCHOOL OF MUSIC -----Karl Ahrendt, Ph.D., *Director*

THE SCHOOL OF PAINTING AND ALLIED ARTS ----Frederick D. Leach, Ph.D.,
Director

THE GRADUATE COLLEGE -----Taylor Culbert, Ph.D., *Dean*

SPECIAL PROGRAMS -----John H. Chandler, Ph.D., *Dean*

OFF-CAMPUS ACADEMIC PROGRAMS ----Edward M. Penson, Ph.D., *Dean*

THE DIVISION OF PHYSICAL EDUCATION AND ATHLETICS -----
William D. Rohr, M.Ed., *Director*

THE GRADUATE COLLEGE

Cutler Hall

Taylor Culbert, Ph.D. ----- *Dean of the Graduate College*

James M. Gault, B.S.Ed. ----- *Administrative Assistant to the Dean*

Carolyn Clutter, M.Ed. ----- *Secretary of the Graduate College*

THE GRADUATE COUNCIL

TAYLOR CULBERT, Ph.D., Dean of the Graduate College, Professor of English,
Chairman

ROBERT M. BOYD, Ph.D., Associate Professor of Education

NORMAN S. COHN, Ph.D., Associate Professor of Botany

ROGER W. FINLAY, Ph.D., Associate Professor of Physics

PAUL A. GAMES, Ph.D., Professor of Psychology

MENO LOVENSTEIN, Ph.D., The Charles G. O'Brien Professor of Economics

EDWARD M. PENSON, Ph.D., Dean of Off-Campus Academic Programs,
Professor of Dramatic Art and Speech

ROGER C. QUISENBERRY, Ph.D., Professor of Electrical Engineering

ANTHONY G. TRISOLINI, Ph.D., Professor of Fine Arts

CARL H. WEAVER, Ph.D., Professor of Public Address

ARVIN R. WELLS, Ph.D., Associate Professor of English

WALTER W. WRIGHT, S.B., B.S.L.S., Director of Libraries, Assistant
Professor of Library Science

1966-1967 CALENDAR

The student should obtain from the Graduate College office a detailed list of deadlines in the semester in which he expects to receive the graduate degree.

FIRST SEMESTER 1966-1967

1966

- | | |
|----------------|---|
| Sept. 13 Tues. | Registration for students who did not pre-register. |
| Sept. 14 Wed. | Classes begin. |
| Sept. 27 Tues. | Last day to register for the semester.
Last day to file application with payment of fee for graduation on January 28.
Last day to add a course by change order. |
| Oct. 1 Sat. | Last day to withdraw from a course. |
| Oct. 8 Sat. | Last day for partial refund of fees to students with withdraw. |
| Oct. 22 Sat. | Last day to remove incomplete grades incurred during last session in residence. |
| Nov. 23 Wed. | Thanksgiving recess begins at noon. |
| Nov. 28 Mon. | Classes resume with first scheduled class. |
| Nov. 30 Wed. | Advising for second semester; classes dismissed. |
| Dec. 17 Sat. | Christmas recess begins after last class. |

1967

- | | |
|----------------|---|
| Jan. 4 Wed. | Classes resume with first scheduled class. |
| Jan. 19 Thurs. | Last day of classes.
Last day for degree candidates to take oral examination on thesis or dissertation. |
| Jan. 20 Fri. | Final examinations begin. |
| Jan. 21 Sat. | Theses and dissertations due in library and abstracts due in Graduate College office.
Incomplete and pending grades of candidates due in registrar's office by 4:00 p.m. |
| Jan. 26 Thurs. | Final examinations end. |
| Jan. 28 Sat. | Semester closes; commencement. |

SECOND SEMESTER 1966-1967

Jan. 30 Mon.	Semester opens.
Feb. 1 Wed.	Registration for students who did not pre-register.
Feb. 2 Thurs.	Classes begin.
Feb. 15 Wed.	Last day to register for the semester. Last day to file application with payment of fee for graduation on June 4. Last day to add a course by change order.
Feb. 18 Sat.	Last day to withdraw from a course.
Feb. 25 Sat.	Last day for partial refund of fees to students who withdraw.
Mar. 11 Sat.	Last day to remove incomplete grades incurred during last semester in residence.
Mar. 25 Sat.	Spring recess begins after last class.
Apr. 3 Mon.	Classes resume with first scheduled class.
May 23 Tues.	Last day of classes. Last day for degree candidates to take oral examination on thesis or dissertation.
May 24 Wed.	Advising for September.
May 25 Thurs.	Final examinations begin. Theses and dissertations due in library and abstracts due in Graduate College office. Incomplete and pending grades of candidates due in registrar's office by 4:00 p.m.
May 30 Tues.	Memorial Day Holiday.
June 1 Thurs.	Final examinations end.
June 4 Sun.	Commencement.

THE 1967 SUMMER SESSION

First Term June 12 to July 18

Second Term July 20 to August 26

For complete announcements see the Summer Session Bulletin.

1967-1968

Ohio University will be changing to the quarter system in September, 1967.

The fall quarter will be from September 27, 1967 to December 16, 1967.

The winter quarter will be from January 3, 1968 to March 16, 1968.

The spring quarter will be from March 25, 1968 to June 8, 1968.

The summer quarter will be: First term—June 17 to July 24, 1968;

Second term—July 25 to August 31, 1968.

Further adaptations of information regarding the quarter system contained herein will be made in Part II to be issued later.

GENERAL INFORMATION

PROFILE OF OHIO UNIVERSITY

Ohio University, chartered in 1804 by the First General Assembly of Ohio, is a symbol of America's early realization of the importance of education. The Ordinance of 1787 which created the Northwest Territory provided: "Schools and the means of education shall forever be encouraged."

In 163 years, Ohio University has grown from a single building to 83 principal buildings covering 738 acres. The main campus, with an enrollment of 15,000 in seven colleges and six schools, is located in Athens. In addition, more than 5,000 students are enrolled in branch campuses at Belmont County, Chillicothe, Ironton, Lancaster, Portsmouth, Zanesville, and the educational center at Lockbourne Air Force Base.

Athens, a city of 16,000, is located in scenic southeastern Ohio, 76 miles southeast of Columbus, Ohio, the state capital, and 40 miles west of Parkersburg, West Virginia. It is easily accessible on U.S. Routes 33 and 50. Athens is on the Baltimore-St. Louis route of the Baltimore and Ohio Railroad. North-south bus service is provided by the Lake Shore System and Trailways, and east-west service by Greyhound. A University-owned airport, with a 4,000 foot paved and lighted runway, is two miles east of the campus on U.S. Route 50 east and open to the public.

Ohio University has in progress an extensive building program to meet the rapidly increasing needs of students and faculty. The program includes a 25 million dollar science and engineering campus under construction, a new seven story, six million dollar library, a seven million dollar, 14,000 seat convocation center, a music building, and an educational radio-television center. Work has recently been completed on a sixteen million dollar residence hall complex to supplement 27 residence halls now in use.

The Graduate College offers master's degree work in 43 areas of study and in 13 doctoral areas, with additional doctoral areas in various stages of planning. The enrollment of the Graduate College is nearly 1,500 students, most of whom are full-time students.

The University is accredited by the North Central Association of Colleges and Secondary Schools, and by the recognized professional accrediting associations iden-

tified with its major academic divisions. The University also holds membership in the leading state and national educational and professional associations in major areas of interest.

The University's academic calendar consists at present of two eighteen-week semesters and a summer session of two five and one-half week terms. In September, 1967, a change will be made to an academic year of four quarters. Many students find it advantageous to register for all sessions, thus obtaining an opportunity for unbroken year-round study and research. Graduate appointees (teaching, research, and graduate assistants) have the added opportunity of study with waiver of the general registration fee during the summer sessions immediately preceding and following the period of their regular appointment. Some graduate appointments and scholarships are available in the summer sessions as well as in the regular academic year.

FACILITIES AND SERVICES

Graduate students have full use of all University facilities and may avail themselves of all its services.

UNIVERSITY LIBRARIES

The Edwin Watts Chubb Library houses the major part of the collection of 400,000 volumes, including periodical sets and documents. The collection is shelved in the stacks to which all students have access. About 3200 periodicals are received regularly.

There are extensive resources of microfilm, microcard, and microprint. The library has a reader-printer, a microfile camera, and Xerox copiers. Fully staffed departmental libraries are maintained for the College of Education and the College of Fine Arts, and specialized collections on a less formal basis are administered in connection with the College of Business Administration, the School of Music, and the Departments of Botany, Chemistry, Geology, Physics, and Zoology.

Special collections in the Chubb Library include the valuable J. W. Morgan Collection of historical books in chemistry and other physical sciences, the University's rare book collections, and the University Archives.

STUDENT HEALTH SERVICE

The Student Health Service facilities, located in the Hudson Health Center, include an out-patient department and a 90-bed hospital section and ancillary services, which include x-ray, clinical laboratory, physical therapy and electrocardiography. A Student Dental Clinic, a Mental Hygiene Department and a Department of Environmental Health are also included in the Health Service.

The Health Service maintains a continuous health record on each student, beginning with the report of medical history and physical examination by the family physician which is required for admission to the University or for re-enrollment after an absence of two or more years.

A tuberculin skin test is required of each new student and is given at the Center at the time of entrance to the University. All positive skin reactors receive a chest x-ray annually. This requirement also applies to students re-enrolling after an absence of two or more years.

The Health Service staff currently includes seven full-time physicians, a University dentist, 29 registered nurses, a Director of Environmental Health, two University sanitarians, as well as registered laboratory and x-ray personnel.

MAJOR MEDICAL INSURANCE PLAN. A major medical insurance plan, specifically designed to supplement the care provided by the Student Health Service, is mandatory for every full-time student at an annual premium of \$16 unless the student submits evidence that he is covered by a comparable private insurance plan.

The plan provides protection against major medical and surgical expenses and is effective for one year, not only while in Athens, but at all times wherever the student may be. In addition to the medical and surgical benefits payable under the terms of the group plan contract, an accidental death payment is a provision of the policy.

To assist married students, a major medical-surgical expense protection insurance plan for dependents is available through the University comprehensive group medical insurance policy. Benefits of the policy are excellent and are available for a very low premium.

CENTER FOR PSYCHOLOGICAL SERVICES

Professional counseling services are available to students with educational, personal adjustment, and vocational concerns. Educational counseling is available to those

students having academic difficulties and to those who would like to maximize their academic performance through discussion of areas such as ability, motivation, or study skills. Personal adjustment counseling includes all types of personal difficulties such as unsatisfactory relationships with others, excessive fears, feelings of anxiety or depression, or other similar concerns. Vocational counseling enables a student to have a better understanding of his personal needs, abilities, and interests so that he may make appropriate and satisfying decisions about his major field of study or career. An extensive file of literature is available about occupations and career areas including information about the duties, present and future opportunities, required training, and income related to particular occupations.

All counseling is confidential and does not become a part of the student's academic record. A student wishing to make an appointment may do so by coming to the Center for Psychological Services located at 44 University Terrace or by calling 594-6081.

PLACEMENT SERVICES

The University Placement Service has two divisions. The *Educational Placement Bureau*, located in McCracken Hall, affords students, former students, and graduates of the University assistance in securing teaching and administrative positions in public schools and in Education departments of colleges and universities.

The University Placement Service, located in Berry Hall, offers assistance to students and alumni who are seeking positions in business, industry, government, and in colleges and universities (except Education departments). The Internship Office (summer jobs and the German Work Program) is also an integral part of the University Placement Service.

GRADUATE STUDENT ADVISORY COUNCIL

The Graduate Student Advisory Council consists of graduate student representatives from several departments, representatives from the Graduate Council, and the Dean of the Graduate College. The purpose of the Council is to provide communication between the graduate student body and the Graduate College, to organize appropriate activities for graduate students, and to promote the general welfare of graduate students at Ohio University.

RECREATIONAL AND CULTURAL ACTIVITIES

THE JOHN CALHOUN BAKER UNIVERSITY CENTER

The Baker Center provides facilities for the cultural, social and recreational benefit of the students. The building contains three lounges, a large ballroom, dining rooms, cafeteria, snack bar, library and record listening room, television, conference rooms, and recreational areas for bowling, billiards, table tennis and cards.

RECREATION

Recreational facilities available to students are the natatorium, the indoor ice skating rink, a golf course adjacent to the campus, and tennis and handball courts.

Feature motion pictures are shown three nights a week in Memorial Auditorium.

Four of the state's most scenic areas are located near Athens, and are used as weekend retreats by students and faculty members. Included are Dow Lake, located east of Athens in a 200-acre state park and used by the University for educational and research projects; Lake Hope, located in the heart of Zaleski State Forest; the caves and gorges of the Hocking Park area; and Burr Oak Lake, Glouster.

CULTURAL PROJECTS

The University annually invites guest artists and other distinguished persons to spend time on the campus lecturing, appearing in recitals, and talking informally with interested students.

The University sponsors a concert series, bringing to the campus internationally famous instrumentalists and vocalists, symphony orchestras, opera and ballet companies and chamber music groups.

The Edwin and Ruth Kennedy Lecture Series has brought many distinguished persons to the campus including Adolph A. Berle, Charles Malik, John Ciardi, William O. Douglas, Arnold Toynbee, Margaret Mead, Charles Frankel, Paul Tillich, and General Maxwell Taylor.

The College of Fine Arts plans many events of a cultural nature each year. In addition to the numerous concerts and plays which are presented by the students and faculties of the School of Dramatic Art and Speech and the School of Music, the two schools cooperate in campus-wide productions of outstanding musicals.

For over two decades the School of Painting and Allied Arts has sponsored the Ohio Valley Oil and Water Color Show, a competition open to artists of Ohio, Illi-

nois, Indiana, Kentucky, West Virginia and Pennsylvania. The University is building a permanent collection of paintings, many of which are purchased from this show. A program of art exhibitions is conducted throughout the year.

The Ohio Valley Summer Theatre, sponsored by the School of Dramatic Art and Speech, produces annually a series of six outstanding plays.

HONOR SOCIETIES

Ohio University has chapters of Phi Kappa Phi and the Society of Sigma Xi. The former recognizes scholarly accomplishments of graduate students in all fields of study. The latter honors those in the sciences who have given evidence of outstanding ability in scholarship and research.

LIVING ARRANGEMENTS

Application for housing is made to the Director of Housing, Ohio University, Athens, Ohio 45701.

Rooms in private residences are listed with the Director of Housing and have been inspected and approved by the University. Graduate students are not restricted to the homes on the supervised housing list.

A student renting a room in a private home is expected to remain in the home for one semester or quarter unless satisfactory arrangements are made with the householder.

Students living in private homes may arrange to eat in Baker Center cafeteria, but must continue such arrangements throughout the semester or quarter. Such arrangements for board are made in the office of the Director of Housing. The cost of board in University halls is \$234 a semester for 21 meals a week. Meals are served throughout the academic year except during the Thanksgiving, Christmas and Spring recesses. Board rates are subject to revision, in accordance with prevailing economic conditions.

Married student facilities include fifty-two permanent brick units on Wolfe Street adjacent to the University Golf Course. All applicants must be institutional full-time students. An assignment to University married student facilities includes the obligation and responsibility to meet the terms and conditions of occupancy as stipulated in the contract agreement.

The apartments are complete with basic furnishings including range and refrigerator, a hide-a-bed, a six drawer chest, kitchen table with four straight chairs, com-

bination desk-dresser, double bed, two lounge chairs, and a wall mirror. Laundry rooms with coin-operated automatic machines are available to residents. Rentals per month, including utilities, are \$70 for the studio apartment, \$85 for the one bedroom, \$95 for the bedroom and nursery, and \$110 for the bi-floor unit.

Assignment to apartments is made when available on the basis of the date of receipt of application with an accompanying security deposit of \$25.00. The deposit is

refunded after the apartment is vacated, if certain conditions are met.

Since present University facilities for married students are not sufficient to meet the demand, many married students live in privately operated apartments and houses in Athens. Rents vary with size and accommodations. For further information concerning housing for married and single graduate students, write to the Director of Housing, Ohio University, Athens, Ohio 45701.

ADMISSION, FEES, AND REGULATIONS

ADMISSION

A student holding a bachelor's degree from an accredited college or university who has attained an undergraduate scholastic point-hour ratio of 2.5 or better on hours attempted, and preferably a 3.0 (*B*) in the area of the proposed major, will be considered for admission with *regular (or unconditional) status* in the Graduate College. (Point-hour ratio is computed on a 4-point system: $A = 4$, $B = 3$, $C = 2$, $D = 1$.) Further supporting evidence of the student's ability in the form of the Graduate Record Examination, Admission Test for Graduate Study in Business, Miller Analogies Test, or other college ability tests and letters of recommendation may also be requested.*

The student should consult with his specific department about the tests or the point average required, since departments may establish requirements that are higher or more stringent than the above University-wide minimum requirements.

A student holding a bachelor's degree from an unaccredited institution, or a person whose undergraduate preparation is deficient will be required to supplement his undergraduate record with a satisfactory score on an acceptable standard college ability test.* (See page 13 — *Conditional Status*.)

A student with a master's degree will be considered for admission to graduate study for the doctorate, with the amount of graduate credit accepted by transfer subject to review and recommendation by the graduate committee of the department concerned.

All correspondence pertaining to the admission of a student to the Graduate College should be addressed to the Dean of the Graduate College, Ohio University, Athens.

*Those who have taken either of these tests are urged to have their scores reported to the Graduate College, Ohio University.

Further information about the Graduate Record Examination (given in January, April, July, and November) or the Admission Test for Graduate Study in Business (given in November, February, April, and July) may be obtained by writing to the Educational Testing Service, Princeton, New Jersey 08540. Applicants in the West Coast region should write to the E.T.S., 1947 Center St., Berkeley, Calif. 94704.

Information on the Miller Analogies Test may be obtained from The Psychological Corporation, 304 E. 45th St., New York, N.Y. 10017.

Students on the Ohio University campus may obtain test application forms from the Graduate College or the Testing Center.

Application for admission consists of the presentation of application blanks filled in by the applicant, an official transcript from *each* school attended (sent directly to the Graduate College), a vaccination blank certified by a physician, and a medical history blank filled in by the applicant and completed by a physician.

Applications for admission, together with the \$5.00 application fee (a check or money order payable to Ohio University), and supporting credentials, including official transcripts of all academic work, should be received at least three weeks before registration for the semester, quarter, or summer term in which the student wishes to begin graduate study.

All documents received by the University in connection with applications for admission become the property of Ohio University. Under no circumstances will they be returned to the applicant or forwarded to any agency or other college or university. Documents of students who are admitted to the Graduate College but who fail to enroll within one year after the session for which they are admitted are destroyed.

EARLY ADMISSION TO THE GRADUATE COLLEGE

A superior student with senior standing at Ohio University may, with the written endorsement of the chairman of his major department and the approval of the Dean of the Graduate College, be admitted to a degree program with regular status, and may enroll in graduate courses for graduate credit. Under unusual circumstances non-senior students at Ohio University may be considered for this program. The courses may be used to satisfy both undergraduate and master's degree requirements.

FEES

(Effective September, 1966)

REGISTRATION FEES

Payment of all assessed fees at the times designated is prerequisite to official enrollment. Checks and money orders should be drawn in favor of Ohio University in the exact amount of the fees. Postdated checks are not acceptable. Checks not paid on presentation to the bank will automatically cancel any receipts given and result in assessment of penalties.

For a small service fee the payment of the basic charges may be spread over a four month period. Election of this payment plan must be made in advance. Students who wish to elect the plan should request the pamphlet on fee equalization.

Ohio University reserves the right to make, without prior notice, any fee adjustments that may become necessary.

THE QUARTER:

Comprehensive fee includes the general registration fee; the student activity fee; student service fees, such as health and library; and course and laboratory fees.

Hours	Resident of Ohio	Non- Resident
1 -----	\$ 19.00	\$ 38.00
2 -----	38.00	76.00
3 -----	57.00	114.00
4 -----	76.00	152.00
5 -----	95.00	190.00
6 -----	114.00	228.00
7 -----	133.00	266.00
8 -----	152.00	304.00
9 to 16 inclusive ---	165.00	330.00
For each hour in excess of 16 add	19.00	38.00
to the comprehensive fee of -----	165.00	330.00

Note: The fee for 1 to 6 hours does not carry with it the privilege of a student activity card or the use of the Health Service.

Auditors pay fees in full as above.

THE SUMMER TERMS:

See Summer Session Bulletin for details.

MISCELLANEOUS FEES

Admission Application filing fee ----	\$ 5.00
Change of course -----	2.00
Duplicate official forms, fee receipts, grade report, etc. -----	2.00
Graduation—	
Application for degree -----	15.00
Re-application -----	5.00
Penalty for late application -----	5.00
Diploma mailing fee for those ex- cused from commencement -----	2.00
Late registration or late payment of fees—\$3.00 minimum -----	As assessed
Microfilming fee, required of Ph.D. candidates -----	25.00
Thesis and Dissertation binding, each copy -----	3.75
Transcript of record, after first tran- script request -----	1.00
Group requests of five to ten copies, \$5.00; up to twenty copies, \$10.00	

REFUND OF FEES

Voluntary and official withdrawal from the University entitles the student to a refund of 80 per cent of the comprehensive fee if he withdraws within the first or second week of a semester, and 50 per cent if he withdraws within the third or fourth week. A week is interpreted to mean a calendar week and ends at noon on Saturday. Refunds are issued thirty days after the date of withdrawal.

If a student withdraws from the University before he pays his registration fees or before he completes the payment of his registration fees, he is considered indebted to the University for the amount determined according to the refund regulations.

CLASSIFICATION OF GRADUATE STUDENTS

DEGREE

1. Those students approved by the major department and the Dean of the Graduate College for unqualified admission to a graduate degree program are granted *regular* (or unconditional) *status*.

2. Those students who have some deficiency in entrance requirements may be approved by a major department and the Dean of the Graduate College for admission with *conditional status*. Students in this category may achieve regular status after the satisfactory completion of a prescribed program of study to remove deficiencies. A student who is deficient more than 12 *semester* hours of undergraduate prerequisites will register as an *undergraduate special* student while removing the deficiency (in excess of 12 hours).

Undergraduate courses (any course — whether 300 level or below — not taken for graduate credit) which are required of a graduate student as further preparation for entry upon the master's program itself may be taken either for credit or for audit and will not count in determining the student's grade point average for his master's degree program, although they may be used by the department in evaluating the student's capability for graduate work. The department will specify whether the student should take such preparatory courses for audit or for credit.

NON-DEGREE

A student who wishes to take a graduate course or to receive graduate credit for a workshop or an institute, with no intention of working toward a graduate degree at Ohio University, must apply for admission

to the Graduate College in the regular manner as a *non-degree* student. Approval for such admission does not constitute admission to the Graduate College to a degree program, and the credit earned cannot normally be applied toward a graduate degree at Ohio University. The student must request permission *each* semester or quarter to register as a non-degree student. If a non-degree student does not register for a period of one year, he must submit a new application for admission.

No more than a total of 12 hours of academic work may be taken as a non-degree student. The appropriate academic department will determine which courses (if any) that were taken while in a non-degree status may be applied subsequently toward satisfaction of degree requirements.

TRANSIENT

A graduate student currently working toward a degree at another university who wishes to earn graduate credit at Ohio University to be transferred to the other university may be admitted as a *transient* student by submitting an application and presenting an official statement of good standing from the *dean of the graduate school* in which he is enrolled. Such a student must request permission *each* semester or quarter to register at Ohio University as a transient student.

SENIORS AND GRADUATE STUDY

A student who is within 9 hours of completing all requirements for the bachelor's degree at Ohio University may take courses applying toward the master's degree, provided he otherwise meets the requirements of admission and secures the written recommendation of the dean of his college, the graduate chairman of his major department, and the approval of the Dean of the Graduate College. This privilege may also be extended to well-qualified seniors of other colleges who have 9 or fewer semester hours to complete for their bachelor's degree. *Request for the above privilege must be made in advance of registration through the Graduate College office.*

GENERAL REGULATIONS

WITHDRAWAL FROM THE UNIVERSITY

Application for withdrawal is made on a withdrawal form obtained from the Graduate College Office. When the request for withdrawal has been approved, the Registrar grants an official withdrawal after it has been determined that all ob-

ligations to the University have been met. During the first three weeks of the *semester* a grade of *W* is recorded; withdrawal following the close of the third week of a *semester* results in a grade of *WP* in each course the student is passing, or *WF* if he is failing. Hours of *WP* are not included in total hours attempted; hours of *WF* are included. *WP* and *WF* appear on the transcript of record.

A student who leaves the University without obtaining an official withdrawal is not permitted a refund of fees and is given the grade *F* in all courses. The University reserves the right to ask a student to withdraw at any time when it considers such action to be in its best interest.

CHANGE ORDERS

A student who finds it necessary to add a course, withdraw from a course, or correct his registration, requests a change order in the Graduate College office. The order does not go into effect until it has been presented to and accepted by the Office of the Registrar.

The dates during which a change order may be processed are indicated in the calendar in the front of this bulletin.

CHANGE OF ADDRESS

A student is responsible for a University office communication sent to him at the last address reported to the Office of the Registrar. Forms for reporting a change of home or Athens address are available in the Registrar's office.

MOTOR VEHICLES

University regulations require that *all* motor vehicles operated by students in Athens must be registered in the Office of the Director of Security. This must be done during registration week, or if a car or other motor vehicle is brought to the campus after registration week, it must be registered within twenty-four hours. Failure to register a motor vehicle will result in a fine and possible denial of driving privileges.

IN-STATE OR OUT-OF-STATE STATUS

An adult student, 21 years of age or older, is considered to be an Ohio resident if he has resided in the state for a minimum of twelve consecutive months preceding the date of enrollment and if he has an evident present intent to remain in the state indefinitely, provided that his residency in Ohio has not been for the purpose of attending a college or university.

A minor student is considered to be an Ohio resident if his parents or his legal guardian have resided in the state for a minimum of twelve consecutive months preceding the student's enrollment and if the parents' or guardian's residence during that year has been maintained with the evident intent to remain in the state indefinitely, provided that such action has not been taken for the purpose of gaining residence status for the minor student.

For the purpose of determining residence requirements under these rules, a person will be considered a minor until he has reached his twenty-first birthday even though such person may have been emancipated. Married minors, however, are entitled to establish and to maintain their own residency as provided above.

The residency of a married woman is determined by the rules which would apply to her husband if he would seek enrollment; except that a woman who has enrolled as an Ohio resident may continue to be considered an Ohio resident upon marrying a non-resident, provided her enrollment is continuous and she continues to live in the State of Ohio.

A woman who is legally separated from her husband may establish her own residency pursuant to the first paragraph in this section.

The residency of any student may be re-evaluated for each term of re-enrollment. At such time, any student who has not been classified as an Ohio resident, and requests to be so classified, must prove that he has met requirements for Ohio residency as stated above. Application for re-determination of status may be made through the Office of the Graduate College.

A student who has been classified as an Ohio resident shall be considered to have lost his residency in this state twelve consecutive months after he, or in the case of a minor, his parents or legal guardian move to another state with the intention of remaining there and making such state their place of residence, notwithstanding the fact that he or they may entertain an intention to return at some future period.

Aliens admitted to this country on immigrant visas may establish Ohio residency in the same manner as any other nonresident.

Members of the Armed Forces who enter the service from another state, and their dependent children, shall be classified as Ohio residents during the period of their active duty assignment in Ohio.

ACADEMIC REGULATIONS

ASSIGNMENT OF ADVISERS

A student who qualifies for admission to the Graduate College confers with the departmental chairman or the chairman of the departmental graduate committee. The chairman will assign a faculty adviser to counsel with the graduate student and prepare the program of graduate study. A copy of the program is returned early in the initial term of study to the Graduate College office where it is filed and becomes a part of the record of the graduate student.

STANDARDS OF WORK

The minimum standard is a grade point average of 3.0 (*B*) on all graduate work attempted. No grade below *C* can be used to satisfy degree requirements. A course taken for graduate credit in which the grade of *D* is received may not be used to meet the minimum hour requirements for the degree. The hours and the points, however, will be used to compute the grade point average. If a graduate course is repeated, both grades received will be used in computing the point average. Of all the hours counted toward the satisfaction of degree requirements, no more than twenty per cent can be below *B*.

A grade of *S* (satisfactory) or *U* (unsatisfactory) may be recorded for thesis, dissertation, seminar, research, or problems. The designation of "pending" in a problems, research, or seminar course must, by arrangement with the instructor, be removed within one year after the official closing of the session in which the course was taken. An "incomplete" in all other courses must be removed within six weeks after the opening of the next session in which the student is in residence. *S* or *U* for thesis or dissertation is not indicated until the completion of the thesis or dissertation oral examination.

COURSES FOR GRADUATE STUDY

Credit toward a graduate degree is given for the completion of courses designed for graduate students (numbered 400-599) and courses designed for advanced undergraduates and graduates (numbered 300-399), provided the courses are included in the student's approved program of study. (In September, 1967 a new course numbering system will be in effect.)

APPLICATION FOR GRADUATION

The student must apply for graduation through the Office of the Registrar at the time indicated in the University Calendar.

If the requirements for the degree are not fulfilled within the designated semester or quarter the student must re-apply for graduation.

A student must be registered in the semester, quarter, or term in which he receives the degree, or in any semester, quarter, or term in which the University is affording him some service, such as use of the library, giving and grading an examination, reading a thesis or dissertation, giving him advice on the thesis or dissertation, etc. If the student has completed all of his course work, the registration may be for "Continuing Registration." A master's candidate registers for a minimum of one hour and a doctoral candidate for a

minimum of two hours under this title on registration day.

The University graduation exercises are conducted to honor those who have earned their degrees. The graduate is expected to attend the commencement exercises unless excused by the Dean of the Graduate College. Academic costumes with the appropriate hoods are worn by the candidates as a part of the ceremony. The candidate will make his own arrangements for rental of the appropriate academic costume through the campus agency provided for this service. The doctoral hood is bestowed by the University upon doctoral students who attend the graduation exercises, and need not be rented.

FINANCIAL AIDS

TEACHING, RESEARCH, AND GRADUATE ASSISTANTSHIPS

A number of teaching assistantships, research assistantships, and graduate assistantships are available in the Graduate College of Ohio University. Persons receiving these appointments are selected on a basis of merit from students who have received the baccalaureate and/or master's degree from approved institutions and who wish to pursue work leading to graduate degrees.

TEACHING ASSISTANTSHIPS carry a stipend of \$2200 to \$4200 (for three quarters) and a waiver of the comprehensive fee, with the exception of the \$40 incidental fee, each quarter during the period of service. The teaching assistant is required to render approximately 18 hours of instructional service per week, and is required to carry 9 to 13 quarter hours of graduate work. The general registration fee will also be waived during the summer quarters directly preceding and following the period of an appointment.

A teaching assistant continuing study beyond the first year is eligible for consideration for reappointment to the assistantship. The assistant who has completed three quarters of service with an exceptionally good record may, on the recommendation of his department, be reappointed for a second year at an increased stipend with waiver of fees as noted above.

Teaching assistantships usually are available to qualified students in the following areas of *master's work*: accounting, art, bacteriology, botany, business administration, chemistry, economics, education, engineering (including chemical, civil, electrical, and mechanical), English, finance, fine arts, geology, government, history, home economics, industrial arts, journalism, linguistics, management, mathematics, modern languages, music, philosophy, photography, physical education, physics, psychology, public address, radio-television, sociology, speech pathology and audiology, theatre, and zoology.

Teaching assistantships usually are available in the following areas to persons working toward a *doctoral degree* who have completed the master's degree or its equivalent: chemistry, education (administration, elementary, guidance and student personnel), electrical engineering, English, fine arts, linguistics, physics, psychology, public address, radio-television, and speech pathology and audiology.

RESEARCH ASSISTANTSHIPS are established on the basis of grants-in-aid to the University for the conduct of research. Appointees to these assistantships must show exceptional aptitude for research. Their obligation involves the promotion of the research program of the department through which the grant is made. Research assistants render approximately eighteen hours of service per week and normally carry 9 to 13 quarter hours of work toward completion of their graduate program. In general, the stipend and waiver of fees will be the same as those of a teaching assistantship.

GRADUATE ASSISTANTSHIPS are available in the area of student affairs (dormitories, discipline, activities, fraternities, off-campus housing), in the libraries, and in certain other special areas. Compensation and waiver of fees are the same as for teaching and research assistantships.

Appointments in the residence halls are made on the recommendation of the Director of Student Residence. These appointments are available to single or married men and women as Resident Directors in the residence halls. Compensation includes a furnished apartment and board for the appointee (and for his family if he is married), and a stipend plus waiver of fees as indicated. The Resident Director supervises the functions of the residence hall and coordinates the responsibilities of graduate assistant Resident Directors and undergraduate Resident Assistants assigned to work with him. The normal course load is 9 to 13 hours per quarter. Application is made to the Graduate College for these appointments. Application by letter must *also* be made to the Director of Student Residence.

TRAINEESHIPS AND FELLOWSHIPS

Ohio University has a limited number of "named" fellowships such as the "Clipper Fellowship in English" and the "Hiram Roy Wilson Fellowship in Chemistry." The University participates in the NDEA Fellowship program, NSF Traineeship program, NASA Traineeship program, VRA Traineeship program, Prospective Teacher Fellowship program, Environment Health Traineeship program, etc. Inquiries about the provisions and availability of appointments in any of these programs should be directed to the department of the student's interest.

SCHOLARSHIPS

An incoming graduate student who has maintained a 3.0 (B) undergraduate average, or a graduate student who has maintained at least a 3.25 graduate average may apply for a University scholarship. These scholarships require full-time study and pay the comprehensive fee, with the exception of a \$40 incidental fee each quarter. Information may be obtained by addressing the Graduate College, Ohio University, Athens, Ohio 45701.

Applications for all graduate appointments should be filed with the Dean of the Graduate College by March 1. Application blanks may be obtained from the office of the Dean of the Graduate College.

LOANS

For a student to be eligible for a loan, he must be accepted for enrollment at Ohio University, be in good standing at his undergraduate alma mater, and show justifiable financial need for the amount of the loan to pursue a course of study.

Graduate students are eligible to apply for a loan of up to \$2500 in one academic year and \$10,000 in the aggregate. The interest rate is three per cent on the unpaid balance and the interest accrues beginning nine months after leaving Ohio University. Repayment begins one year after leaving Ohio University unless deferred while the borrower is attending an

institution of higher education as a full-time student and during any period, not to exceed three years, in which the borrower is a member of the Armed Forces or is serving with the Peace Corps or VISTA. Repayment of the principal of the loan is to be made over a ten year period. The borrower may, however, accelerate his repayment and reduce the total interest charged.

Up to one-half of any loan, in addition to accrued interest, is cancelled for services as a full-time teacher in a public or private non-profit elementary or secondary school, or in an institution of higher education. The loan and interest is cancelled upon death or permanent and total disability of the borrower.

All loans must be evidenced by a note and the Ohio University Financial Aid Committee requires a co-signer in all cases, preferably a parent or guardian. This regulation applies to those students of legal age, regardless of their marital status. The deadline for an NDEA loan is June 1 for the fall quarter or for the academic year of three quarters. Summer school applications deadline is May, and results are forwarded at the end of May.

Further information concerning the loan program and forms for applying for loan assistance may be requested of the Director of Student Financial Aids, Ohio University, Athens, Ohio 45701.

THE GRADUATE PROGRAM

The graduate program at Ohio University provides advanced professional training in the area of a student's field of specialization and affords opportunities for the conduct of research and special investigations. The program of graduate study should become an initiation into methods of intensive study and research in some selected area of knowledge. It is the objective of the Graduate College to provide its students with a high degree of professional competence.

Graduate degrees are granted in the following areas:

- Accounting
- Architecture (minor only)
- Bacteriology
- Botany
- Business Administration
- *Chemistry
- Classical Languages (minor only)
- Dramatic Art and Speech
 - *Public Address
 - *Radio-Television
 - *Speech Pathology and Audiology
- Theatre
- Economics
- *Education
 - *Elementary
 - Secondary
 - *Educational Administration
 - *Guidance and Student Personnel
- Engineering
 - Chemical
 - Civil
 - *Electrical
 - Mechanical
- *English Language and Literature
 - *Linguistics
- *Fine Arts
 - Foreign Affairs
 - Geography (minor only)
 - Geology
 - Government
 - History
 - Home Economics
 - Industrial Arts
 - Journalism
 - Mathematics
 - Modern Languages
 - French
 - German
 - Russian (minor only)
 - Spanish
- Music
 - Music Education
 - Painting and Allied Arts
 - Art Education

- Philosophy
- Photography
- Physical Education and Athletics
- *Physics
- *Psychology
- Sociology and Anthropology
- Zoology

*Ph.D. granting areas

THE MASTER'S DEGREE

RESIDENCE AND CREDIT

At least 45 quarter hours of credit are required for the master's degree. Additional hours may be required by individual departments. A maximum of 12 quarter hours of graduate credit with A or B grades may be accepted by transfer from approved institutions which offer the master's degree, provided the transferred course work is acceptable to the student's adviser and is *not more than five years old*. Credit for courses taken by correspondence is not accepted toward the degree. At least 33 quarter hours of graduate credit must be earned on the campuses of Ohio University. At least one quarter or two summer terms (not necessarily consecutive) must be spent in an institutional full time status on the Athens campus. Exceptions must be approved by the Graduate Council. A graduate student who is employed full time may, with the approval of his major adviser and the Dean of the Graduate College, carry a maximum of 6 hours of credit in a quarter or a summer session of eleven weeks.

A student seeking the master's degree under either the thesis or the nonthesis plan *must be officially registered for at least one quarter hour of credit in the session in which he receives his degree*. The adviser may recommend that registration be for more than the stipulated hour. (See page 16.)

REQUIREMENTS FOR THE MASTER'S DEGREE

For the Master of Arts, Master of Education, Master of Science, Master of Fine Arts, or Master of Business Administration degree the student may write a thesis under the direction of his adviser on a subject approved by the graduate committee of the department.

Nonthesis programs, with a minimum requirement of 45 quarter hours, are available in selected areas. At present nonthesis options are available as follows:

For the *Master of Arts* degree in Art Education, Economics, English, History, and Speech.

For the *Master of Business Administration* degree and the *Master of Science* degree with a major in Accounting.

For the *Master of Education* degree in Education, Home Economics, Industrial Arts, and Physical Education.

For the *Master of Fine Arts* degree with a major in applied music, Painting, Photography, and Sculpture.

For the *Master of Science* degree with a major in Chemical Engineering, Civil Engineering, Mechanical Engineering, and Mathematics.

PROGRAMS OF STUDY AND STUDENT LOAD

A program of study approved by the student's adviser and by the graduate committee of his department should be developed early in the student's first quarter of graduate work. A copy should be submitted to the Graduate College office.

Since graduate work implies advanced study and some degree of specialization, a certain amount of undergraduate preparation in a subject or field of study is presupposed before graduate study may be undertaken in that subject or field. In most departments a minimum of 27 quarter hours of undergraduate work is required for the major. The student is referred to the requirements listed by departments.

The normal full-time academic load for a graduate student is 12 to 15 credit hours per quarter. A student taking an academic load greater than 16 hours must secure written permission to do so from his adviser and from the Dean of the Graduate College.

EXAMINATIONS

A *major examination* may, at the discretion of the department, be required. The nature and timing of the examination will be determined by the department. The results of any such examination must be reported to the Graduate College *within one week* on forms provided by the Graduate College. A candidate who fails the major examination may retake the examination at the discretion of the departmental graduate committee.

An *oral thesis examination*, for those submitting a master's thesis, shall be given not later than the date indicated in the University calendar. The examining committee shall be composed of the director of the thesis as chairman and two or more additional faculty members. Results of the examination will be reported to the Gradu-

ate College office on forms furnished by the Graduate College. This report should be filed *within two days* after the examination.

THESIS

The candidate prepares his thesis under the direction of his thesis director on a subject in the field of his major work. The thesis provides an opportunity for the student to formulate and express the results of his research and study. The thesis requirement may be met by the presentation of the results of a creative activity in literature, music, fine arts, or industrial arts, together with a written essay indicating the purpose, procedure, problems, and bibliography involved in the work. The format which gives directions and style for writing the thesis is obtained in the office of the Graduate College.

The student and his thesis director are responsible for the maintenance of accepted standards of grammar, sentence structure, punctuation, form and scholarly style in the thesis. It is recommended that the manuscript be put into final typed form by one who has had experience in thesis typing.

The final copies of the thesis must be distributed to the members of the student's examining committee *at least one week prior to the date of the oral examination* in order that adequate review of the manuscript may be made by the examining committee prior to the examination.

After the thesis is approved by the Graduate College and not later than the date indicated in the University calendar, the candidate files two unbound copies of the thesis with the university librarian and one bound copy of the thesis in the office of the Graduate College. The two copies filed with the university librarian are bound and retained in the university library, and the copy filed in the Graduate College is presented to the school or department in which the work has been done.

If the student desires a bound copy of his thesis, arrangements for this service can be secured through the library.

TIME LIMIT FOR THE MASTER'S PROGRAM

The maximum time allowed between the date when a student first registers for graduate study and the date when the requirements for the master's degree are completed is six calendar years. Students who do not complete their requirements for the degree within the six-year period may be permitted to continue in graduate study only if exceptional circumstances are

associated with the delay in progress. An extension of time is automatically granted to those students whose programs have been interrupted by military service.

THE DOCTOR OF PHILOSOPHY DEGREE

The doctor's degree is granted on the basis of evidence that the candidate has achieved a high level of scholarship and proficiency in research rather than solely on the basis of successful completion of a prescribed amount of course work. The competence of the student and his ability to work independently and to write creatively are established by qualifying and comprehensive examinations and the quality of a dissertation submitted as an account of his original research.

RESIDENCE AND CREDIT

A minimum of nine quarters of study and research beyond the bachelor's degree is needed to meet the requirements of the doctor's degree. At least three academic quarters of the doctoral program of study shall be in continuous residence on the Athens campus of Ohio University in an institutional full-time status. The continuous residence requirement applies to the period of graduate study following the completion of the master's degree or the equivalent of approximately 45 quarter hours of graduate study.

TRANSFER OF CREDIT

The amount of credit accepted toward the doctorate by transfer from another university will be determined by the graduate committee of the department concerned and the Dean of the Graduate College.

PROGRAM OF STUDY

The student will be assigned an adviser by the graduate committee of the major department who will, with an advisory committee appointed by the graduate committee of the department, outline the proposed program of study for the degree. The program will be indicated on a special form supplied for this purpose, and one copy must be filed in the Graduate College office.

The personnel of the student's advisory committee is reported to the Dean of the Graduate College to be made a matter of record.

TIME LIMIT FOR THE DOCTOR'S PROGRAM

The maximum time allowed between the date when a student holding a bachelor's

degree initiates graduate study and the date when the requirements for the doctor's degree are completed is seven calendar years. For a person holding a master's degree the maximum time allowed from the date of initiating work toward a doctorate and the date when the requirements are completed is six calendar years.

Students who do not complete their requirements for the degree within the given period may be permitted to continue in graduate study only if exceptional circumstances are associated with the delay in progress. An extension of time is automatically granted to those students whose programs have been interrupted by military service.

COMPREHENSIVE EXAMINATION

Toward the end of the student's sixth full quarter of graduate study, or when course work is virtually completed, and upon the recommendation of his advisory committee, the student takes his comprehensive examination, which is given for the purpose of establishing his mastery of the fields of specialization or his readiness for advanced research. The results of the examination must be reported to the Graduate College within *one week* on forms provided by the Graduate College.

The committee for this examination consists of the student's advisory committee and at least two members of the major department appointed by the chairman of the major department. Other members of the faculty are free to participate in the oral phase of this examination.

SCHOLARLY DISCIPLINE REQUIREMENT

Prior to admission to candidacy the student will be required to demonstrate proficiency in two scholarly disciplines outside of, but related to, his area of concentration, as determined by the graduate committee of the department in which he is working. Normally one of these will be a reading knowledge of one foreign language to be designated by the graduate committee of the department. They may include (1) a reading knowledge of a second foreign language, (2) a knowledge of the literature of a foreign language (the language may be that with which he satisfies the requirement for his first scholarly discipline), or (3) some relevant disciplines, such as computer science or statistics.

An *Authorization Form* (copies are available in the Graduate College office) must be submitted by each student requesting to take an examination in one of the scholarly disciplines. This form requires

the signature of the chairman of the departmental graduate committee.

ADMISSION TO CANDIDACY

Upon successful completion of the comprehensive examinations, fulfillment of the scholarly discipline requirement and official approval of a research prospectus, a student may, by recommendation of his departmental graduate committee, be admitted to candidacy. *Candidacy must be obtained at least three quarters prior to the granting of the degree.* Application forms for admission to candidacy are obtained at the Graduate College office or from the chairman of the departmental graduate committee.)

DISSERTATION

A dissertation, which is the scholarly account of an investigation or research in a new area of knowledge, is submitted by each candidate. *The student expecting to receive the Ph.D. degree must be registered for at least two quarter hours of credit in the session in which he receives his degree.* The adviser may recommend that registration be for more than the stipulated two hours. (See page 16.)

An oral examination on the dissertation shall be given not later than the date indicated in the University calendar. The examining committee shall be composed of the student's doctoral committee, with the dissertation director as chairman, and a representative of the Graduate Council as appointed by the Dean of the Graduate College. The final arrangements for the examination shall be completed *through the Graduate College office* at least ten

days prior to the examination. Details of the examination, including time and place, will be sent to the examiners and to the student from the Graduate College office.

No later than one week prior to the date of the oral examination at least three copies of the finished manuscript must be distributed to members of the examining committee. The first or original copy is brought to the Graduate College office for the representative of the Graduate Council who will serve on the examining committee.

By the date indicated in the University calendar of the semester in which the candidate receives his degree all approved copies of the dissertation, together with one copy of an abstract of about 600 words and two copies of a two or three sentence abstract (all signed by the dissertation director) are submitted to the Dean of the Graduate College for final approval.

At this time the original and the first copy of the dissertation and the longer copy of the abstract are filed with the University library. A binding fee of \$3.75 per copy and a microfilming fee of \$25.00 are paid to the treasurer of the University.

The original copy of the dissertation will be sent to University Microfilms, Inc. for editing and microfilming, and will be made available for use by inter-library exchange. It is then returned to the Ohio University Library. The longer abstract will be submitted to University Microfilms, Inc., Ann Arbor, Michigan, for publication in *Dissertation Abstracts*. The second copy of the dissertation will be bound as directed and submitted to the student's major department.

MAJOR FIELDS OF GRADUATE STUDY

NOTE: Requirements described in this section are based upon a semester calendar. New requirements based upon the quarter calendar, which becomes effective in September, 1967, will be announced later.

ACCOUNTING

The Master of Science degree with a major in accounting is available on the thesis or the non-thesis plan. For admission to graduate study in accounting a student should have completed 12 semester hours of advanced undergraduate courses in accounting, including cost accounting and taxes. In addition, the following business core curriculum courses should be completed: elementary accounting, business law, economics (6 hours in each); finance, management, marketing, and statistics (3 hours in each). Undergraduate deficiencies may be completed concurrently with early graduate work. The Admission Test for Graduate Study in Business is required before admission or during the first semester.

A student may pursue the M.B.A. degree, taking his elective work in accounting.

For further information write to *Robert E. Neubig, Chairman, Department of Accounting, Ohio University, Athens, Ohio 45701.*

BOTANY

Master of Science programs are offered in the following fields of Botany: Cytology, Ecology, Morphology, Mycology, Paleobotany, Pathology, Phychology, Physiology, and Taxonomy. Only thesis programs are offered.

Twenty-four semester hours of work in Botany or closely related fields which are approved by the chairman of the department are required to begin graduate work in botany. Courses in morphology, physiology, and taxonomy should be included in the student's preparation. Deficiencies in undergraduate preparation may be made up during the course of graduate study.

One year of college chemistry is required of all applicants. Applicants with significant deficiencies should take the Graduate Record Examination.

For further information about graduate work in this department, write to *Dr. Norman S. Cohn, Chairman, Graduate Committee, Department of Botany, Ohio University, Athens, Ohio 45701.*

BUSINESS ADMINISTRATION

The Master of Business Administration (MBA) program is designed to provide broad training in each of the functional areas of business. The graduate phase of the program consists of ten courses (thirty semester hours). Eight courses are in core subjects. Elective courses are recommended by the student's adviser. Up to forty per cent of graduate work may be selected in a particular field such as Accounting, Economics, Finance, Management, or Marketing. A thesis is not required, but may be elected.

Thirty semester hours of preliminary preparation in business/economics are required before graduate work can begin (Accounting and Economics — six hours each; Finance, Law, Management, Marketing, Statistics, and elective — three hours each). Students may receive waivers of appropriate preliminary courses based on undergraduate work. Deficiencies in preliminary preparation may be made up as part of the MBA program.

Applicants should take the Admission Test for Graduate Study in Business (ATGSB) and submit a copy of the score to the College of Business Administration.

For further information about graduate work in Business Administration, write to: *William A. Day, Director of Graduate Programs, College of Business Administration, Ohio University, Athens, Ohio 45701.*

CHEMISTRY

Master of Science and Ph.D. programs are offered in the analytical, inorganic, organic, and physical areas. A graduate program in biochemistry will be available beginning in 1967.

To begin a graduate major in chemistry the student should have completed a full year's work in quantitative analysis (8 hours), organic chemistry (10 hours), and physical chemistry (6 hours). Calculus (8 hours) and physics (8 hours) are also required. Deficiencies in undergraduate preparation may be made up during the first semester of study.

Entrance examinations in inorganic, analytical, organic, and physical chemistry are administered during registration week. The results are employed in planning the student's program of study.

For further information about graduate work in this department, write to *Robert*

J. Kline, Chairman, Graduate Committee, Department of Chemistry, Ohio University, Athens, Ohio 45701.

DRAMATIC ART AND SPEECH

M.A. programs are offered in Theatre, Speech Pathology and Audiology, Radio-Television, Public Address and General Speech, with thesis and nonthesis programs available at the option of the area faculty. Laboratory experience is provided in radio broadcasting, open and closed circuit television, speech and hearing diagnosis and therapy, all aspects of educational and professional theatre production and intercollegiate forensics.

The Ph.D. is available in Radio-Television, Speech Pathology and Audiology, and Public Address. Theatre cooperates with other schools in offering the Ph.D. in Fine Arts. Unusually extensive programs are maintained in all these areas.

Admission to the Graduate College in the field of speech at the master's level may be qualified or unqualified. Among the requirements for unqualified admission are 24 semester hours in Speech and a 2.5 average. Admission must be approved by the School of Dramatic Art and Speech, and candidates admitted conditionally must maintain a B average in graduate courses during the first semester. All applicants are required to submit recommendations to the School of Dramatic Art and Speech.

For further information about graduate work in this department, write to *Dr. Carl H. Weaver, Chairman, Graduate Committee, Department of Speech, Ohio University, Athens, Ohio 45701.*

ECONOMICS

The Master of Arts degree is offered in Economics.

At least 30 semester hours in business administration and/or related social sciences, including Principles of Economics, Statistics, and Money and Banking are required to begin graduate work in Economics. An accumulative undergraduate average of at least 2.5 ($A=4$) is normally required. Scores on the Graduate Record Examination or the Admission Test for Graduate Study in Business should be submitted to the Graduate College.

For further information write to *Chairman, Department of Economics, Ohio University, Athens, Ohio 45701.*

EDUCATION

EDUCATIONAL ADMINISTRATION

Programs leading to the M.Ed. degree, the Diploma of Professional Competence

and to the Ph.D. degree are offered in the fields of:

Business Administration in Education
Educational Administration

Personnel Administration in Education

Opportunities for specialization are provided to meet individual needs and to prepare for specific responsibilities in school systems, colleges and universities, and state departments or ministries of education.

The Center for Educational Research and Service makes available the resources of the College of Education and of the University to educational workers and to boards of education served by Ohio University.

The resources of the Center for Educational Research and Service and the projects which it undertakes offer opportunities for graduate students to participate in field studies of real educational situations and problems.

The cooperative arrangements with the various colleges of Ohio University make it possible for the student to pursue a wide range of interests and to achieve a high degree of competence for a specific type of position.

For further information write to *Graduate Committee in Educational Administration, 201 McCracken Hall, Ohio University, Athens, Ohio.*

ELEMENTARY EDUCATION

The Master of Education degree is offered in Elementary Education, Elementary Administration, and Elementary Curriculum and Supervision. The programs are planned to extend the competencies of persons working in these areas in the elementary schools. A minimum of six semester hours is required outside the College of Education in a related area.

The Professional Competency Certificate, or Sixth-Year Program, is combined with the successful completion of the Master of Education degree in one of the above-mentioned areas and a minimum of thirty semester hours of advanced graduate study. Teachers, supervisors, and administrators are given the opportunity to broaden their understanding of school functions, particularly in curriculum and the learning processes. In addition, students may specialize in specific areas of the curriculum such as reading, mathematics, social science, science, and human development. Required in this program also is a minimum of six semester hours outside the College of Education in a related area.

The Ph.D. program in Elementary Education continues the general broadening of the professional preparation for elementary

teachers, supervisors, and administrators. The Ph.D. in Elementary Education is designed to prepare experienced classroom teachers for positions in teacher education or in administrative-supervisory capacities in the public schools. The program is flexible enough to permit a large degree of specialization in any one of the basic curriculum areas such as social studies, reading and language arts, mathematics, or science. A minor in a related discipline outside the College of Education must be completed as a requirement for this degree.

For further information write to *Graduate Committee in Elementary Education, 202 McCracken Hall, Ohio University, Athens, Ohio 45701.*

SECONDARY EDUCATION

The Department of Secondary Education offers programs leading to the Master of Education degree in the following distinct areas of specialization: (1) secondary education, designed to help teachers improve their teaching; (2) secondary administration, developed to prepare high school principals; and (3) secondary curriculum and supervision, designed to prepare high school supervisors.

The Professional Competency Certificate, or Sixth-Year Program, is based upon the successful completion of the Master of Education degree in secondary administration or secondary curriculum and supervision and consists of a minimum of an additional thirty semester hours of advanced graduate study.

The Master's and the Competency programs include nine to twelve hours each in a related area outside the College of Education.

Ph.D. programs are offered in secondary-school administration and in secondary-school curriculum and supervision. These doctoral programs are designed to prepare the student for administrative and supervisory positions in school systems.

Students seeking admission to pre-doctoral programs in secondary administration or supervision must have several years of successful full-time experience as teachers and/or administrators.

For further information write to *Robert M. Boyd, Chairman, Department of Secondary Education, Ohio University, Athens, Ohio 45701.*

GUIDANCE, COUNSELING, AND STUDENT PERSONNEL

Programs are offered leading to the M.Ed. and Ph.D. degrees in Elementary School Guidance and Counseling, Secondary School Guidance and Counseling, and Stu-

dent Personnel Services in Higher Education. The Ph.D. is offered in Counselor Education in Higher Education. Professional preparation in these programs is designed for persons planning to pursue careers in several of the specialist areas in Pupil and Student Personnel work, including the Elementary School Counselor, the School Counselor in junior and senior high schools, the College Counselor, Student Personnel Administrator, and the counselor in settings requiring a similar educational background.

Applicants are required to submit scores on the Graduate Record Examination. Personal interviews are also a factor in the selection procedure. Courses of study balance theoretical foundations with applied experience. Sixth-year Professional Competence Programs are offered as a part of a two-year counselor-education program and for those wishing to qualify for professional certification and for administrative and supervisory positions in Guidance and Personnel work.

For further information write to: *Dean L. Hummel, Chairman, Department of Guidance, Counseling, and Student Personnel, College of Education, Ohio University, Athens, Ohio, 45701.*

ENGINEERING

CHEMICAL

Programs leading to the Master of Science degree are offered. The basic requirement for admission is a grade point average of 2.5 in an accredited B.S. program in chemical engineering. A student who has completed undergraduate requirements at an unaccredited institution, who has received an undergraduate degree in an area other than chemical engineering, or whose scholastic record is deficient may be admitted on conditional status. In these cases, scores on the Graduate Record Examination should be submitted to give additional evidence of aptitude for graduate work. The Graduate program will be modified to meet the student's special needs.

Students working toward the M.S. degree are expected to take at least 15 hours in chemical engineering courses, including applied calculations, advanced thermodynamics, and transport phenomena.

For further information write to *Chairman, Department of Chemical Engineering, Ohio University, Athens, Ohio 45701.*

CIVIL

Master of Science programs are offered with major study in solid mechanics, fluid mechanics, and soils engineering including soil mechanics, sanitary engineering, struc-

tures, and transportation.

To begin graduate study a student should have graduated from an E.C.P.D.-accredited curriculum in civil engineering or its equivalent although graduates of other curricula will be considered. Deficiencies may be removed during the period of graduate study but credit thus earned will not count toward the degree.

Applicants who do not satisfy the normal requirements for admission as stated above must present satisfactory scores on the Graduate Record Examination.

For further information write to *Carl L. Shermer, Chairman, Department of Civil Engineering, Ohio University, Athens, Ohio 45701.*

ELECTRICAL

M.S. and Ph.D. programs are offered in Electrical Engineering. The principal areas of interest include Computers; Control; Communication and Information; Energy Conversion; Electromagnetic Phenomena in Vacuo, in Solid Media, in Fluids and at Interfaces; Generation and Control of Electromagnetic Energy; Solid State Devices; Transducer Theory and Development.

To begin a graduate program in Electrical Engineering a student must have a B.S. degree in Electrical Engineering or an equivalent degree in a related physical science or engineering. Deficiencies in undergraduate preparation may be made up during the first year of study.

Applicants with degrees from nonaccredited schools should take the Graduate Record Examination, including the advanced test.

For further information about graduate work in this department, write to *G. E. Smith, Chairman, Graduate Committee, Electrical Engineering, Ohio University, Athens, Ohio 45701.*

MECHANICAL

The Master of Science degree is offered in the fields of mechanical design, thermodynamics, and industrial engineering. Courses for the minor are usually in other areas such as mathematics, physics, or an engineering area other than the major area. For Industrial Engineering majors, minors may be elected in such related areas as Business Administration and Psychology.

An undergraduate average of at least 2.5, and preferably 3.0 in the proposed major area, is required for admission. A student holding a bachelor's degree from an unaccredited institution, or whose undergraduate preparation is deficient, must submit a satisfactory score on the Graduate Record

Examination or other college ability test and make up deficiencies as prescribed by the department. Letters of recommendation may be required.

Both a thesis and a non-thesis option are available. Selection of either option will be made by the departmental graduate committee after consultation with each student. The requirement for the thesis option is the satisfactory completion of at least 21 semester hours of course work plus an acceptable thesis. For the non-thesis option 30 semester hours of course work are required. This latter option includes both a three-credit hour course involving a report of a special investigation and a comprehensive written examination on course material.

For further information write to *O. E. Adams, Chairman, Graduate Committee, Department of Mechanical Engineering, Ohio University, Athens, Ohio 45701.*

ENGLISH LANGUAGE AND LITERATURE

M.A. and Ph.D. programs are offered in all areas of English and American literature in the English language, and in comparative literature. Thesis and non-thesis master's programs are offered.

To begin a graduate major in English, a student must have completed 24 semester hours of undergraduate work in English. Deficiencies in undergraduate preparation may be made up during the first semester of study.

Applicants should take the Graduate Record Examination, including the advanced test, before they arrive on campus or during their first semester of residence. Students completing their M.A. at Ohio University will apply to the Graduate Committee of the English Department for admission to the Ph.D. program. Evidence of a reading knowledge of one foreign language is required for the master's degree.

For further information about graduate work in this department write to *Chairman, Graduate Committee, Department of English, Ohio University, Athens, Ohio 45701.*

FINE ARTS

The major emphasis of the Ph.D. in Fine Arts program is placed upon the interrelationship of major art forms. Major course work is taken in the history and theory of the arts of Architecture, Music, Painting and Sculpture, Rhetoric, and Theatre.

Students entering this program should have completed a master's degree with major emphasis on the practical application

of the fine arts. The undergraduate or master's degree program should include 18 semester hours in the history of the fine arts.

Requirements for admission and for the degree include evidence of creative activity in the form of portfolios, slides, tapes, designs etc. The final research paper for the degree is a dissertation which is comparative in nature.

For further information about graduate work in this department, write to *Anthony G. Trisolini, Chairman, Graduate Committee in Fine Arts, Ohio University, Athens, Ohio 45701.*

FOREIGN AFFAIRS

The Master of Arts degree in Foreign Affairs is an interdisciplinary program designed for students interested in government service, private industry, or further academic work. Courses are selected from the areas of Economics, Government, History, and Sociology. Students must demonstrate ability to use a foreign language. A course in statistics and a comprehensive examination are required; a thesis is optional.

For admission a student must hold a bachelor's degree from an accredited institution and be accepted by the Center for International Studies.

For further information about the program, write to the *Director, Center for International Studies, Ohio University, Athens, Ohio 45701.*

GEOLOGY

The Master of Science degree is offered in the following fields of Geology: geomorphology, glacial geology, hydrology, paleontology, stratigraphy, economic geology, mineralogy, petrology, sedimentation and structural geology.

Graduate students who wish to major in geology must have an undergraduate average of at least 2.5 and must have completed three semester hours in each of the following courses: historical geology, mineralogy, petrology, and structural geology, and in addition must have earned sufficient hours of the following to complete a minimum of 24 semester hours in geology: economic geology, glacial geology, geomorphology, paleontology, sedimentation, stratigraphy, and field geology. At least six semester hours each of chemistry, physics, and mathematics through trigonometry are required. Students unable to meet the above requirements will be asked to make up deficiencies without graduate credit.

For the master's degree it is recommended, where appropriate, that the grad-

uate student complete differential calculus and quantitative chemistry or courses in advanced zoology. Credit in a recognized field camp is required. A thesis is required in one of the fields of specialization.

For further information about graduate work in the department, write to *Prof. Willard B. Phelps, Chairman, Graduate Committee, Department of Geography and Geology, Ohio University, Athens, Ohio 45701.*

GOVERNMENT

The Master of Arts degree is offered in all areas of political science. A comprehensive examination and a thesis are required. To begin a graduate major in government, a student should have 18 semester hours of undergraduate work and 3.0 in undergraduate courses in government, or special permission.

For further information about graduate work in this department, write to *Dr. Richard Bald, Chairman, Graduate Committee, Department of Government, Ohio University, Athens, Ohio 45701.*

HISTORY

A Master of Arts program is offered with work in the history of the United States, Europe, Latin America, Africa, Middle East and Southeast Asia. Thesis and non-thesis master's programs are available.

A minimum of 24 semester hours of undergraduate work in history, including the basic survey courses in European and American history or their equivalent, and at least three courses at the junior-senior level are required. Deficiencies in undergraduate preparation may be made up during the first semester of study.

No foreign language is required for admission to the program, but students in the thesis program must demonstrate a reading proficiency in one foreign language prior to approval of their thesis.

For further information about graduate work in history, write to *Robert L. Daniel, Chairman, Graduate Committee, Department of History, Ohio University, Athens, Ohio 45701.*

HOME ECONOMICS

The School of Home Economics offers graduate programs leading to the Master of Science degree in four fields: Home Economics Education, Foods and Nutrition, Textiles and Clothing, Child Development and Family Life Education. In addition, an interdivisional program leading to a Master of Education degree is offered for Home Economics or Family Life teachers in junior-senior high schools, or junior college.

To begin a graduate major in home economics one should have a minimum of 18 semester hours of undergraduate preparation in the field of home economics in which he wishes to specialize and/or in approved related fields. For a student majoring in Home Economics Education, a minimum of 24 semester hours of undergraduate credit distributed among at least three areas of home economics is required. Deficiencies in undergraduate preparation may be made up during the first semester of study.

A student holding a bachelor's degree from an accredited college or university who has attained an undergraduate scholastic point-hour ratio of 2.5 ($A=4.0$) or better on hours attempted, and preferably a 3.0 in the area of the proposed major, will be considered for admission with regular status in the Graduate College. Further supporting evidence of the student's ability in the form of the Graduate Record Examination or other college ability tests and letters of recommendation may also be requested.

For further information about graduate work in Home Economics, write to *Dr. Beulah Sellers, Chairman, Graduate Committee, School of Home Economics, Ohio University, Athens, Ohio 45701.*

INDUSTRIAL ARTS

A Master of Education degree is offered in Industrial Arts. Thesis or non-thesis programs may be arranged. Courses related to the major may be added from other areas of the University, as approved by the major advisor and the Department Graduate Committee.

An overall grade point average of at least 2.5 is required for admission, and the undergraduate program should include a minimum of 27 semester hours in industrial arts, including at least one course in each of the following areas, as required for teacher certification in Ohio: Graphic Arts, Woodworking, Metalworking, Applied Electricity, Crafts and/or Ceramics, and Drawing.

The application of a person not meeting the above requirements will be considered on an individual basis by the Graduate Committee in Industrial Arts. Normally, persons who have not met teacher certification requirements for Ohio will be required to take undergraduate courses in addition to their regular graduate requirements.

For further information about graduate work in this department, write to *Dr. Robert H. Hawlk, Chairman, Graduate Com-*

mittee, Department of Industrial Technology, Ohio University, Athens, Ohio 45701.

JOURNALISM

Graduate work leading to the Master of Science degree is offered in all areas of journalism and mass communications. Special sequences included are News Writing and Editing, Advertising-Management, Magazine Journalism, Public Relations, and Radio-Television News. Graduate courses and seminars are offered in such areas as Theory of Mass Communications, Research Methods, Literature of Journalism, and Government and Mass Communications.

To begin a graduate major, a student should have a minimum of 12 semester hours of basic journalism courses and 6 additional hours of approved work in journalism or related fields. Students without undergraduate courses in journalism may be required to take some journalism courses on the undergraduate level. These may be taken concurrently with the graduate program.

To begin a graduate minor in journalism, courses prescribed as prerequisites, or approved equivalents are required. These prerequisites usually total 6 to 12 semester hours. Special courses are offered for teachers of journalism who may be attending the summer workshops.

For further information about graduate work in journalism, write to *Dr. L. J. Horton, Director, School of Journalism, Ohio University, Athens, Ohio 45701.*

LINGUISTICS

Master of Arts programs in Linguistics are offered in the following areas: general linguistics, applied linguistics, and teaching English as a foreign language. A thesis is optional for the Master of Arts degree. The Doctor of Philosophy degree is offered.

To begin a graduate major in Linguistics a student should have completed 24 semester hours of work in modern, foreign or classical language, or a field closely allied with Linguistics such as mathematics, psychology, sociology, or speech.

Degree candidates are required to demonstrate proficiency in one foreign language for the master's degree and in two for the Ph.D. degree. French or German is suggested for the master's degree.

For further information write to *Dr. Orrin Frink, Chairman, Committee on Linguistics, Ohio University, Athens, Ohio 45701.*

MATHEMATICS

The Master of Science degree in mathematics is offered. The writing of a thesis is optional. In the non-thesis program, 36 semester hours of credit is required. For those writing a thesis, 30 semester hours of credit (plus the writing of the thesis) is required.

For all master's degree candidates in mathematics, the minimum semester hour requirements should be distributed as follows:

- a) at least 6 hours in analysis from courses numbered 343 or higher
- b) at least 6 hours in algebra from courses numbered 321 or higher
- c) at least 3 hours in geometry and/or topology
- d) the remaining hours needed to meet the minimum semester hours requirement is to be selected by the student in consultation with his advisor.

For further information about graduate work in this department write to *Chairman, Graduate Committee, Department of Mathematics, Ohio University, Athens, Ohio 45701*.

MODERN LANGUAGES

Master of Arts programs are offered in French, Spanish, and German languages and literatures. With departmental approval, the student may elect to write a thesis or he may select the non-thesis program.

To begin a graduate major in any modern foreign language, the student must have completed 24 semester hours or its equivalent of undergraduate courses beyond the intermediate level in that language. Deficiencies in undergraduate preparation should be made up during the first semester of study.

Graduate majors in the modern languages may be required to complete two courses (six hours) of study in philology and linguistics. Students in French and Spanish should have a background of training in Latin.

For further information about graduate work in this department write to, *Chairman of the Graduate Committee, Department of Modern Languages, Ohio University, Athens, Ohio 45701*.

MUSIC

Programs leading to the Master of Fine Arts degree are offered in applied music, music education, theory and composition, and music history and literature. The

Master of Education degree is offered in music education. A thesis, or a recital in lieu of a written thesis, is required in all programs.

To begin a graduate major in music a student is required to have completed successfully a four-year undergraduate curriculum in music in an accredited institution offering an undergraduate degree equivalent in hours and content to the requirements of the National Association of Schools of Music. Deficiencies in undergraduate preparation should be removed during the first year of study.

All beginning graduate students are required to take a proficiency test in theory and history of music given during registration week. The results of this test will be used to designate the program of study. All applied music majors will have to demonstrate graduate level proficiency in their particular fields.

For further information about graduate work in the School of Music, write to *Sherwood E. Hall, Chairman, Graduate Committee, School of Music, Ohio University, Athens, Ohio 45701*.

PAINTING AND ALLIED ARTS

The Master of Fine Arts degree, requiring completion of at least 48 semester hours of graduate work, may be obtained in the majority of the fields of art, including Art Education and Photography. A minimum average of 2.5 on all undergraduate work and a bachelor's degree from an accredited institution are requirements for admission to graduate study. The student must also submit a portfolio in order to be considered for admission.

For further information write to *Dr. Frederick D. Leach, Director, School of Painting and Allied Arts, Ohio University, Athens, Ohio 45701*.

PHILOSOPHY

A Master of Arts program is offered permitting specialization but requiring work in the history of philosophy, theory of value, and logic or epistemology. A thesis is required.

To begin a graduate major in philosophy a student must have completed 12 semester hours, including courses in ethics and logic and a one year course in the history of philosophy. (Deficiencies in undergraduate preparation may be made up during the first year of graduate study.) A student must also have received a minimum average of 3.0 (B) in undergraduate courses in philosophy and a 2.5 average in other courses.

For further information about graduate work in this department write to *Chairman, Graduate Committee, Department of Philosophy, Ohio University, Athens, Ohio 45701*.

PHOTOGRAPHY

The Master of Fine Arts degree with a major in photography is offered in both still and motion picture work. To meet acceptance requirements, the student must have the BFA, or a bachelor's degree in some discipline, including 12 semester hours in photography and 6 semester hours in art and design. If deficiencies exist in these areas they may be made up during the student's first semester of residency. Each applicant must submit a portfolio of his work for evaluation.

For further information about graduate work in this department, write to *Elizabeth Truzell, Chairman, Graduate Committee, Department of Photography, Ohio University, Athens, Ohio 45701*.

PHYSICAL EDUCATION

Programs leading to the Master of Science or the Master of Education degree are offered in Physical Education. The thesis plan (Plan A) leads to the M.S. degree, and the non-thesis plan (Plan B) leads to the M.Ed. degree.

To begin a graduate major in Physical Education, a student must have completed 24 semester hours of undergraduate work in Physical Education. (Deficiencies in undergraduate preparation may be made up under specified conditions established by the Graduate Committee in Physical Education.) A 2.5 accumulative undergraduate average is required for admission.

For further information write to *Dr. James G. Mason, Chairman, Graduate Committee, Division of Physical Education and Intercollegiate Athletics, Ohio University, Athens, Ohio 45701*.

PHYSICS

Master of Science and Ph.D. programs are offered in both experimental and theoretical research in chemical physics, cosmic rays, cryogenics, high energy particles, low temperature physics, neutron physics, nuclear physics, solid state physics, spin resonance, statistical physics, ultrasonics, and x-rays. Work is supported by AEC, AFOSR, NASA, HEW, NSF, ONR, and Ohio University. Computer services are available both on-campus and in nearby laboratories.

A student must present evidence of successful undergraduate work in mathemat-

ics, mechanics, electricity and magnetism, thermodynamics, optics, atomic and nuclear physics, and quantum mechanics at the level of the "R-program" recommended by the Commission on College Physics. A student who is well-recommended by deficient in undergraduate preparation may take senior level courses in his first year of graduate study.

Applicants should take the Graduate Record Examination, including the Advanced Test, before they arrive on campus or during their first semester of residence. Qualified students are encouraged to omit the M.S. degree and proceed directly to the Ph.D. A qualifying examination and a thesis are required for the M.S. degree. No fixed number of formal courses is required for the Ph.D. degree; the student must pass the comprehensive examination, demonstrate a reading knowledge of the foreign languages and/or research skills required by his advisory committee, and present a satisfactory research dissertation.

For further information about graduate study and research in physics, write to *C. A. Randall, Chairman, Department of Physics, Ohio University, Athens, Ohio 45701*.

PSYCHOLOGY

The Master of Science (or Master of Arts) is offered in any of the branches of psychology, but particularly in general, experimental, clinical, counseling, school, and industrial. A research thesis is required. Ph.D. programs are offered in general-experimental and clinical-counseling. A research dissertation is required.

To begin a graduate program a student must have completed 18 semester credits of undergraduate psychology, including statistics, experimental psychology, and theory of testing. Deficiencies of undergraduate preparation may be made up in the first semester. Students are favored for acceptance who have stronger preparation in mathematics and the sciences.

Applicants must submit scores on the GRE, including the Advanced Test in psychology, and three letters of recommendation from psychologists. They must have an overall grade point average of 3.0 ($A=4.0$), and a psychology average of 3.3. For admission to the doctoral program they must hold a master's degree in psychology, with a minimum grade point average of 3.5. For the doctor's degree, students must pass a statistical proficiency test and a test of reading knowledge of one foreign language or a test of computer science knowledge. A research dissertation is required, and a

year's internship at an APA-approved facility is also required for the clinical or counseling Ph.D. Comprehensive examinations are given at both master's and doctor's level. The department is scientifically oriented, and a core of courses in experimental psychology, statistics, and systems of psychology is required of all students.

For further information about graduate work in this department, write to *William U. Snyder, Ph.D., Chairman, Graduate Committee, Department of Psychology, Ohio University, Athens, Ohio 45701.*

SOCIOLOGY AND ANTHROPOLOGY

A program leading to the Master of Arts degree is offered in sociology, with a possible minor in social anthropology. Areas of special interest include: comparative social organization, collective behavior, political sociology, deviant behavior, and Africa studies.

To begin a graduate major in sociology a student must have completed a minimum of 15 semester hours in sociology and/or anthropology, including a course in statistics or social research methods. Deficiencies in undergraduate preparation may be made up during the first semester of graduate study. At least a 3.0 average in the student's undergraduate courses in sociology and anthropology is expected.

A pre-admission interview is desirable if it can be arranged; a letter-form statement of interests and plans may serve the same purpose if supplemented by appropriate letters of recommendation. Course re-

quirements for the degree include: sociological theory, research methods, individual research or seminar, and a thesis representing 4 semester hours of work. Part-time field internships may be arranged for research or training purposes in some instances.

For further information about graduate work in sociology write to *Chairman, Graduate Committee, Department of Sociology and Anthropology, Ohio University, Athens, Ohio 45701.*

ZOOLOGY (Bacteriology)

A Master of Science degree can be obtained in anatomy, embryology, genetics, ecology, endocrinology, protozoology, microbiology, ornithology, parasitology, physiology, invertebrate and vertebrate zoology.

All applicants for graduate work are expected to have had undergraduate training in anatomy, genetics, physiology, mathematics, and chemistry (including organic). Deficiencies in these areas can be made up at Ohio University but usually without graduate credit. A grade of at least C must be obtained in these courses.

All graduate majors are expected to do research and to complete a creditable thesis. For certain areas, additional undergraduate courses may be required, (e.g. calculus, statistics).

For further information about graduate work in the department, write to *Chairman, Graduate Committee, Department of Zoology, Ohio University, Athens, Ohio 45701.*



OHIO UNIVERSITY BULLETIN
OHIO UNIVERSITY Athens, Ohio 45701

Return Requested

ENTERED AS SECOND CLASS MATTER
AT ATHENS, OHIO



OHIO UNIVERSITY BULLETIN

GRADUATE COLLEGE

Part-II Course Descriptions 1967-68



OHIO UNIVERSITY BULLETIN

GRADUATE COLLEGE

Part II—Course Descriptions

1967-68

OHIO UNIVERSITY • ATHENS

The programs and requirements contained in this bulletin are effective with the 1967 Fall Quarter. They are necessarily subject to change without notice at the discretion of the University.

CONTENTS

ACADEMIC CALENDAR	5
ADMINISTRATIVE OFFICERS	6
GRADUATE COLLEGE	7
COURSES OF INSTRUCTION	8
Accounting	9
Art	10
Art History	10
Botany	11
Business Administration	13
Business and Industrial communications	13
Business Law	14
Chemistry	14
Classical Languages	16
Communication	17
Comparative Arts	26
Computer Science	29
Economics	29
Economic Education	32
Education	32
Engineering and Technology	47
English	60
Finance	67
Foreign Affairs	68
Geography and Geology	68
Government	70
History	72
Home Economics	78
Industrial Arts	81
Journalism	82
Management	84
Marketing Advertising	85
Mathematics	85
Modern Languages	87

Music	92
Philosophy	94
Photography	95
Physical Education and Intercollegiate Athletics	96
Physics	98
Psychology	101
Quantitative Methods	104
Sociology and Anthropology	105
Theater	107
Zoology	110
UNIVERSITY PRESS, Book List	115

ACADEMIC CALENDAR FOR 1967-68

The student should obtain from the Graduate College office a detailed list of deadlines for the quarter in which he expects to receive the graduate degree.

FALL QUARTER, 1967

Sept. 23, 25, 26	Registration.
Sept. 27	Classes begin.
Oct. 6	Last day to file application and pay fee for conferral of degree on Dec. 16.
Nov. 13-17	Advising and counseling for Winter Quarter for continuing students.
Nov. 22	Thanksgiving vacation begins at noon.
Nov. 27	Classes resume with first scheduled class.
Dec. 16	Last day of Fall Quarter.

WINTER QUARTER, 1968

Jan. 2	Registration for incoming students.
Jan. 3	Classes begin.
Jan. 12	Last day to file application and pay fee for conferral of degree on March 16.
Feb. 12-16	Advising and counseling for Spring Quarter for continuing students.
Mar. 16	Last day of Winter Quarter.

SPRING QUARTER, 1968

Mar. 23	Registration for incoming students.
Mar. 25	Classes begin.
Apr. 16	Last day to file application and pay fee for conferral of degree on June 9.
June 8	Last day of Spring Quarter.
June 9	Commencement.

SUMMER QUARTER, 1968

June 17	First day of classes (First Term).
June 21	Last day to file application and pay fee for conferral of degree on August 31.
July 24	Last day of Summer Quarter (First Term).
July 25	First day of classes (Second Term).
Aug. 31	Last day of Summer Quarter (Second Term).

ADMINISTRATIVE OFFICERS OF THE UNIVERSITY

VERNON R. ALDEN, M.B.A., LL.D., L.H.D., *President of the University*
THOMAS S. SMITH, Ph.D., *Vice President for Academic Affairs*
MARTIN L. HECHT, B.S.C., *Vice President for Development*
JAMES J. WHALEN, Ph.D., *Vice President*
WILLIAM W. CONVERSE, Ed.D., *Vice President for Business Affairs*
ROBERT L. SAVAGE, Ph.D., *Vice President for Research and Industrial Liaison*
JOHN F. MILAR, M.B.A., *Treasurer*

ADMINISTRATIVE OFFICERS IN THE COLLEGES AND DIVISIONS

THE UNIVERSITY COLLEGE -----Gauge B. Paulsen, Ph.D., *Dean*
THE COLLEGE OF ARTS AND SCIENCES ---George R. Klare, Ph.D., *Dean*
THE COLLEGE OF BUSINESS ADMINISTRATION -----Harry F. Evarts,
D.B.A., *Dean*
THE SCHOOL OF JOURNALISM -----J. W. Click, M.S., *Acting Director*
THE COLLEGE OF EDUCATION-----Gilford W. Crowell, Ed.D., *Dean*
THE SCHOOL OF HOME ECONOMICS-----Beulah E. Sellers, Ph.D., *Director*
THE COLLEGE OF ENGINEERING AND TECHNOLOGY -----
Walter J. Fahey, Ph.D., *Dean*
THE COLLEGE OF FINE ARTS -----Jack Sherman Morrison, Ph.D., *Dean*
THE SCHOOL OF ARCHITECTURE AND DESIGN -----
Fount T. Smothers, B.Arch., *Acting Director*
THE SCHOOL OF ART -----Frederick D. Leach, Ph.D., *Director*
THE SCHOOL OF COMMUNICATION -----Claude E. Kantner, Ph.D., *Director*
THE SCHOOL OF MUSIC -----Sherwood Hall, Mus.M., *Acting Director*
THE SCHOOL OF THEATER -----John A. Walker, Ph.D., *Acting Director*
THE GRADUATE COLLEGE -----Taylor Culbert, Ph.D., *Dean*
OFF-CAMPUS ACADEMIC PROGRAMS ---Edward M. Penson, Ph.D., *Dean*
CONTINUING EDUCATION -----Curtis M. Johnson, M.A., *Director*
CORRESPONDENCE STUDY -----Elizabeth B. Stanton, Ph.D., *Director*
PHYSICAL EDUCATION AND INTERCOLLEGIATE ATHLETICS -----
William D. Rohr, M.Ed., *Director*

THE GRADUATE COLLEGE

Cutler Hall

Taylor Culbert, Ph.D. -----*Dean of the Graduate College*
James M. Gault, B.S.Ed. -----*Administrative Assistant to the Dean*
Kenneth E. Russell, B.S.C. -----*Financial Analyst of the Graduate College*
Carolyn Clutter, M.Ed. -----*Secretary of the Graduate College*

THE GRADUATE COUNCIL

TAYLOR CULBERT, Ph.D., Dean of the Graduate College, Professor of English,
Chairman
ROBERT M. BOYD, Ph.D., Associate Professor of Education
NORMAN S. COHN, Ph.D., Associate Professor of Botany
ROGER W. FINLAY, Ph.D., Associate Professor of Physics
PAUL A. GAMES, Ph.D., Professor of Psychology
MENO LOVENSTEIN, Ph.D., The Charles G. O'Brien Professor of Economics
EDWARD M. PENSON, Ph.D., Dean of Off-Campus Academic Programs,
Professor of Dramatic Art and Speech (*ex-officio*)
ROGER C. QUISENBERRY, Ph.D., Professor of Electrical Engineering
ANTHONY G. TRISOLINI, Ph.D., Professor of Fine Arts
CARL H. WEAVER, Ph.D., Professor of Public Address
ARVIN R. WELLS, Ph.D., Associate Professor of English
WALTER W. WRIGHT, S.B., B.S.L.S., Director of Libraries, Assistant Professor
of Library Science (*ex-officio*)

COURSES OF INSTRUCTION

The general policies and regulations of the Graduate College are published in Part I of the *Graduate Bulletin*.

Prospective students are invited to write to the chairman of the departmental graduate committee their interest about any detailed information that is not included in the *Bulletins*.

The fees, programs and requirements described in this *Bulletin* are necessarily subject to change without notice at the discretion of the University.

CATALOG NUMBER—The catalog number indicates the student classification for which the course is intended.

500-699 Master's level

700-899 Post-master's or doctoral level

An asterisk () indicates that the course will be open to both graduate and undergraduate students. Undergraduates must register under the course number given in the undergraduate Bulletin.*

In general, an odd number indicates the first or third quarter of a three-quarter course; an even number, the second quarter.

Three numbers at the beginning of a course indicate a three-quarter or year course. A *hyphen* between the numbers indicates that the course is a continuous sequence; that is, the first quarter is a prerequisite for the second quarter, and the second quarter is a prerequisite for the third quarter. A *comma* between the numbers indicates that although the course is a three-quarter course, the first and second quarters are not prerequisites for the quarters they precede.

CREDIT — Credit for a course is indicated by the number or numbers in parentheses following the course title, and, in the case of a year course, is shown for each quarter.

In a course carrying variable credit the credit may be expressed thus, (1 to 4), indicating that one hour is the minimum and four hours the maximum amount of credit allowed for the course in one quarter. A student may enroll for a course with variable credit any number of times and for any number of quarter hours, within the quarter limit, provided the total registration for the course does not exceed the maximum credit indicated in the course description.

Course prerequisites are indicated at the end of course descriptions following the abbreviation, "Prereq:." A student who completes an advanced course may not subsequently enroll in a prerequisite course for credit.

INSTRUCTORS — The listing is as of June, 1967. Unless otherwise indicated in italics following the course description, the course is taught by the staff of the department.

FEE — When a course requires a private instructional fee, the amount is stated in the description of the course.

CLASS SCHEDULE — A Schedule of Classes is available each quarter from the Office of Registration.

ACCOUNTING

Beckert, Cox, Davis, Pearl, Reininga, Stephenson (acting chairman).

A student seeking the Master of Science degree with a major in accounting should either take or have completed 18 quarter hours of advanced undergraduate courses in accounting, including cost accounting and taxes. In addition, the following business core curriculum courses should be completed: elementary or managerial accounting (9 quarter hours), business law (9 quarter hours), finance (4 quarter hours), management (4 quarter hours), statistics (4 quarter hours), and economics (9 quarter hours).

The requirements for the M.S. degree with a major in accounting are:

Accounting 601	Economics	504
Accounting 602	Finance	511
Accounting 603	Management	600
Accounting 604		

One course to be selected from Accounting 681, Economics 503 and Finance 621. One course to be selected from Accounting 695, Accounting 699, and Management 681.

A student may pursue the Master of Business Administration degree with elective work in accounting. This program is recommended for those who have a major in accounting at the undergraduate level. M.B.A. degree requirements are listed elsewhere in this *Bulletin*.

500-501. Accounting Principles (4-4)

Designed for students with a baccalaureate degree. Intensive over-view of accounting theory, practice and statement preparation.

*505-506. Advanced Accounting (4-3)

Problems peculiar to partnerships, receiverships, fiduciaries, installment sales, consignments, insurance, estates and trusts; compound interest applications; governmental accounting; branches, consolidations, and mergers; foreign exchange.

510. Managerial Accounting (4)

Survey course designed for Master of Business Administration degree students with emphasis on uses of accounting data in making business decisions. Prereq: perm.

520. Advanced Accounting Problems (4)

Analysis, interpretation and solutions of complex accounting problems of the type appearing in official C.P.A. examinations. Prereq: perm.

543. Federal Income Tax Planning (3)

Advanced tax problems of individuals, partnerships, and corporations including tax planning and administration.

551. Auditing Principles and Practice (4)

Purposes and scope of audits and examinations; audit principles and procedure; audit reports and certificates. Prereq: perm.

601. Accounting Theory (4)

Development of accounting theory historically and current developments and literature in the theory area.

602. Accounting Data Accumulation and Analysis (4)

Accounting systems with particular relations to punched card and computerized data processing. Techniques in quantitative analysis of accounting data. Prereq: perm.

603. History, Ethics and Philosophy of the Accounting Profession (4)

Court cases involving the profession, Securities and Exchange Commission, regulation of practice, evolution and ethics of the profession, and the philosophy of auditing. Prereq: perm.

604. Controllership (4)

Case method study of problems and policy-forming decisions of the controllership function which comprises the fields of general accounting, internal control, budgeting, taxes, cost control, and financial reporting. Prereq: perm.

*681. Research in Accounting (2-4)

Independent study in either the area of accounting theory, public accounting, controllership, governmental accounting, or federal taxes. Prereq: perm.

*691. Seminar in Accounting (2-6, max. 12)

Prereq: perm.

695. Thesis (as recommended by dept.)

699. Internship

Six months of acceptable accounting work experience including periodic written reports, final report, and oral examination—all analyzing the work experience and integrating it with the academic program pursued. Prereq: perm.

ADVERTISING

(See Marketing)

ARCHITECTURE

(See Comparative Arts)

ART

Baldwin, Borchard, Cogbill, Coon, DesRosiers, Eldridge, Hostetler, Jonas, Kokis, Kortlander, Kroutel, Lampela, Lasansky, Leach (director), Leonard, Lin, Loomis, McCarthy, Mutchler, O'Connor, Pettigrew, Roberts, Schwindler, Vanderplas, Vickers, Work.

Master of Fine Arts Degree (Major in Painting and Allied Arts)

The graduate program leading to a Master of Fine Arts degree with a major in art involves the completion of at least 90 quarter hours, including credit for research and thesis.

505, 506, 507. Graduate Painting (6, 6, 6)

508. Figure Painting (6)
Prereq: perm.

515, 516, 517. Ceramics (6, 6, 6)

518-519. Glass (3-3)
Continuation of glass blowing and introduction to glass casting and production techniques.

531, 532, 533. Sculpture (6, 6, 6)

541, 542, 543. Lithography (6, 6, 6)
Advanced stone and metal plate lithography.

544, 545, 546. Intaglio (6, 6, 6)
Advanced intaglio printmaking.

560. Studies in Art Education (3)
Critical study of historical and contemporary philosophy and investigation into related research. Individual planning for research projects. Prereq: perm.

561-562. Research in Art Education (3-3)
Original research under the direction of adviser. Prereq: 560.

563. Proseminar in Art Education (3)
Presentation and evaluation of student research projects. Prereq: perm.

605, 606, 607. Painting (6, 6, 6)
Prereq: 507.

615-616-617. Ceramics (6-6-6)
Prereq: 517.

631, 632, 633. Sculpture (6, 6, 6)
Prereq: 532.

641, 642, 643. Lithography (6, 6, 6)
Advanced stone and metal plate lithography.
Prereq: 542.

644, 645, 646. Intaglio (6, 6, 6)
Intaglio printmaking. Prereq: 545.

680. Individual Problems: Studio (1-3)
Prereq: perm.

681. Individual Reading (1-3)
Prereq: perm.

690. Written Thesis (as recommended by dept.)
Prereq: perm.

691. Painting Thesis (as recommended by dept.)
Prereq: perm.

692. Ceramic Thesis (as recommended by dept.)
Prereq: perm.

693. Sculpture Thesis (as recommended by dept.)
Prereq: perm.

694. Lithography Thesis (as recommended by dept.)
Prereq: perm.

695. Intaglio Thesis (as recommended by dept.)
Prereq: perm.

ART HISTORY

*530. Greek Art (3)
Specific developments in period between Minoan/Helladic cultures and those of the Alexandrian Empire.

*531. Roman Art (3)
Studies of motifs and concepts ranging from Etruscan artifacts through Hellenistic to advent of Constantine.

*532. Medieval Art (3)
Painting and sculpture from time of Constantine to that of Giotto.

*533. Italian Renaissance Art (3)
Studies of monuments, motifs and their implications in Quattrocento Italy.

*534. Northern Renaissance Art (3)
Studies in arts of northern Europe to 1530.

*535. Art of High Renaissance and Mannerism (3)
Studies in art and theory of the Cinquecento.

*536 Baroque and Rococo Art (3)
Studies in paintings and sculpture of 17th and 18th centuries.

*539. The Arts of the United States (3)
Specific problems and their patterns from the Colonial era.

*540. The Arts of the Orient (3)
Selected studies in arts of India, China, and Japan.

*541. Pre-Columbian Art (3)
Arts of early Mexico, Middle and South America.

*542. African Art (3)
Artifacts of tribes of the Niger and Congo Basins and their relationships.

*543. Ancient Near Eastern Art (3)
Motifs and monuments of Egypt, Mesopotamia, Assyria, and Babylonia.

*544. Art of the Nineteenth Century (3)
Arts and their development during and after the Industrial Revolution.

*545. Modern Art (3)
Specific movements and artists since 1900.

634, 635, 636. Seminar in Motion Picture History (3, 3, 3)

Development of the film medium with emphasis on contemporary work including non-dramatic genre. Class and outside viewing of motion pictures. Individual research. Prereq: perm.

637, 638. History of Photography (3, 3)
History and development of photography as art, science, and industry. Study of leading photographers and their contributions to development of the art. Prereq: perm.

650. Seminar in Art History (3)
Courses offered by demand. Intensive study of projects of limited scope. Prereq: perm.

681. Individual Reading (1-3)

690. Art History Thesis (as recommended by dept.)

AUDIOLOGY

(See Communication)

BOTANY

Anway, Blickle, Cohn (graduate committee chairman), Gambill, Graffius, Jaffe, Larson, Miller, Reighard, Ungar, Vermillion, Wallace, Wistendahl (department chairman).

To begin a graduate major in botany, the student must have completed a minimum of

18 semester hours (24 quarter hours) in courses in botany and related fields. For admission, a year of general chemistry, a year of physics, and mathematics through analytical geometry are required. Organic chemistry is required for completion of the master's degree.

*510. Developmental Plant Anatomy (4)
Comparative structure and developmental systematic anatomy of vascular plants. *Blickle*

*511. Paleobotany I (3)
Plant macrofossils and microfossils throughout geological time. 2 lec., 2 lab. Sat. field trips. (Winter quarter, 1968-1969) *Blickle*

*512. Paleobotany II (3)
Plant macrofossils and plant microfossils throughout geological time. In part individual research in plant microfossils. (Spring quarter, 1968-1969) *Blickle*

*513. Microtechnique (4)
Principles and methods of preparing all kinds of plant tissues for microscopic study; photomicrographic practices included. Prereq: perm. 2 lec., 2 lab. (Spring quarter, 1968-1969) *Blickle, Reighard*

*518. Wood Technology (4)
Comparative microstructure and macrostructure of woods in application to identification of woods and wood products of economic importance. Special graduation problem required. 3 lec., 2 lab. 3 Sat. field trips. (Winter quarter, 1967-1968) *Blickle*

*520. Plant Synecology (4)
Natural plant communities and readings in literature of community ecology. 2 lec., 4 lab. (Fall quarter) *Wistendahl*

*521. Plant Autecology (4)
Environmental factors effects on species growth and distribution, and a review of recent autecological literature. 2 lec., 4 lab. (Spring quarter) *Ungar*

522. Principles of Vegetation Analysis (4)
Theory and methods involved in describing natural plant communities. Prereq: perm. 2 lec., 4 lab. (Winter quarter) *Ungar*

527. Phytogeography (3)
Theories and principles of plant distribution as related to evolution, migration, and speciation of plants. Prereq: perm. 3 lec. (Winter quarter) *Wistendahl*

***530. General Cytology (3)**

Cell fine and gross structure, cell division, chromosomes, cytoplasm. Prereq: perm. 2 lec., 2 lab. (Fall quarter) *Cohn*

***531. Cytochemistry (3)**

Chemistry of the cell and its components; application of microscopic and biochemical technique. Prereq: perm. (Winter quarter) *Cohn*

***532. Molecular Genetics (3)**

Fine structure of the gene, biochemistry of gene action, cytoplasmic inheritance. Prereq: perm. 3 lec. (Spring quarter, 1967-1968) *Cohn, McQuate*

537. Advanced Cytology (3)

Current topics, chromosomal aberrations, karyotype evolutions, polyploidy, special techniques. Prereq: perm. (Fall quarter, 1968-1969) *Cohn*

***540. General Mycology (3)**

Life history, morphology, physiology and classification of representative species of fungi. 2 lec., 2 lab. (Winter quarter) *Miller*

***541. Aquatic Phycomycetes (3)**

Life history, morphology, classification and physiology including collection and culture of aquatic phycomycetous fungi. 2 lec., 2 lab. (Spring quarter) *Miller*

***542. Plant Pathology (3)**

Present-day concepts and methods in plant pathology. Survey of literature, individual research included. Prereq: perm. 2 lec., 2 lab. (Winter quarter, 1968-1969) *Vermillion*

***543. Plant Pathology (3)**

Representative plant diseases to illustrate various host-causal-factor relationships. In part, individual research. Prereq: perm. 2 lec., 2 lab. (Spring quarter, 1968-1969) *Vermillion*

***545. Diseases of Forest and Shade Trees (4)**

Important diseases of forest and shade trees studied with emphasis upon local diseases. Includes semi-independent studies by students. Prereq: perm. 3 lec., 3 lab. (Spring quarter, 1967-1968) *Vermillion*

***550. Fresh-Water Algae (4)**

Identification, classification, relationships, morphology, and life histories of fresh-water algae, with emphasis on current literature topics and semi-independent study. Prereq: perm. 2 lec., 4 lab. (Spring quarter) *Graffius*

***551. Phycology I (3)**

Identification, classification, growth, relationships, ecology, and geographic distribution of fresh-water and marine algae, with emphasis on phytoplankton. Prereq: 550 or equiv. 2 lec., 2 lab. (Fall quarter, 1967-1968) *Graffius*

***552. Phycology II (3)**

Classification, nomenclature, structure, reproduction, life cycles, economic importance, and physiology of fresh-water and marine algae. Prereq: 550 or equiv., 551 recommended. 2 lec., 2 lab. (Winter quarter, 1967-1968) *Graffius*

***560. Plant Physiology: Water Relations and Growth (3)**

Plant cell, its inclusions and functions; pH and plant growth; movement of water and solutes in plants; role of minerals in plant nutrition; plant growth. Prereq: perm. 2 lec., 2 lab. (Winter quarter) *Larson, Wallace*

***561. Plant Physiology: Metabolism (3)**

Biochemistry of photosynthesis, respiration nitrogen metabolism and plant growth and development. Prereq: perm. 2 lec., 2 lab. (Fall quarter) *Larson, Wallace*

562. Plant Physiological Methods (4)

General study of plant processes with special emphasis on techniques employed in research. Prereq: perm. 2 lec., 4 lab. (Spring quarter, 1969) *Wallace*

***564. Radioisotope Methodology (3)**

Experiments covering radiation measurement, detection, statistics and decay performed. Characteristic properties of radiation and interaction with matter discussed. Prereq: perm. 2 lec., 2 lab. (Winter quarter) *Larson*

***565. Tracer Techniques (3)**

Use of radioactive isotopes in biochemistry emphasized. Experiments in photosynthesis, acetate metabolism and ion uptake performed. Each student plans and executes an experiment using an isotope as a tracer. Prereq: 564. 2 lec., 2 lab. (Spring quarter, 1967-1968) *Larson*

566. Plant Metabolism (3)

Biochemical and physiological aspects of photosynthesis, respiration, nitrogen metabolism, fat metabolism and nucleic acid metabolism; enzyme kinetics and bioenergetics; biogenesis of plant alkaloids and metabolism of lignin, flavonoids, isoprenoids and steroids. Prereq: perm. *Larson*

***570. Dendrology (4)**

Collection, identification, and classification of native and introduced woody plants in summer and winter conditions, with special assignments of outside work. Prereq: perm. 3 lec., 2 lab., 2 Sat. field trips. (Fall quarter) *Gambill*

***572. Taxonomy of Bryophytes (4)**

Identification, nomenclature, and classification of bryophytes through laboratory and field studies, with special assignments of outside work. 2 lec., 4 lab., 2 Sat. field trips. (Spring quarter, 1967-1968) *Gambill*

***573. Advanced Field Taxonomy (3)**

Systematics, nomenclature, and classification of angiosperms through laboratory, field, and herbarium studies with emphasis on fall flora and special assignments of outside work. Prereq: perm. 2 lec., 2 lab., 2 Sat. field trips. (Fall quarter, 1968-1969) *Anway, Gambill*

575-576. Advanced Taxonomy I & II (4-4)

Morphological and experimental approaches, research tools, evolutionary processes and patterns, and literature basic to classification of flowering plants. Emphasis in laboratory work upon methods and practice in determining relationships between natural populations of plants at the infrageneric level. Two 1-hour lects., two 2-hour labs. Prereq: perm. (Fall and Winter quarters) *Anway*

691, 692. Graduate Seminar (1, 1, max. 2)

Presentation by graduate students of reports of readings from botanical literature and/or their research, talks by guest speakers. Two quarters required. Attendance required every quarter offered. (Winter and Spring quarters)

695. Graduate Research (2-4)

Research to meet requirements for master's degree. Total hours unlimited, but only 6 hours credit allowed toward degree.

696. Thesis (0)

Required of all candidates for master's degree.

BUSINESS ADMINISTRATION**Master of Business Administration**

The M.B.A. program is 90 quarter hours in length and is composed of 24 separate courses. Forty-five quarter hours, or 12 courses, can be waived on the basis of undergraduate preparation or examination. These include courses in accounting, economics, management, quantitative methods, statistics, pro-

duction, business law, finance, marketing, and computer science.

Of the remaining 45 quarter hours, 24 are core subjects, 12 are in the student's area of concentration, and 9 are elective hours. Possible fields of concentration include accounting, business communications, economics, finance, management, marketing, organizational behavior, production and quantitative methods.

500. Advanced Economic Theory (4)

Intensive analysis of selected, fundamental theories in economics.

510. Operations Research (4)

Application of quantitative techniques to decision making process.

520. Business Research (4)

Communication theory research methodology, analysis of data, and preparation of written reports.

530. Organizational Control (4)

Investigation of control of the operation of a firm through internal information, emphasizing technique and theory of accounting and finance.

540. Organizational Behavior (4)

Application of psychology, sociology, anthropology, political science and other behavioral disciplines to working with and through individuals and groups.

***555. Studies in Business History (3)**

Case studies of businessmen and firms since the Middle Ages, with principal emphasis on American experience. Special attention paid to ways in which businessmen have affected economic, social and political organization and to implications of business experience for sound business policy.

570. Business Policy (4)

Top management view of decision making affecting future operations of a business, and opportunities, risks and responsibilities accompanying formulation of company policy.

BUSINESS AND INDUSTRIAL COMMUNICATIONS

(Minor only)

Rutkoskie, Spataro (chairman).

A graduate major is not available in Business and Industrial Communications, but a minor can be developed. To begin work, the student must have completed basic courses satisfactory to the department.

510. Management of Communications (4)

Study of communication channels and media used by a firm in relationships with employees, customers, the public and others. Prereq: perm.

***520. Business and Industrial Communications III (3)**

Application of communication principles to current business situations. Emphasis on integrative nature of communication function in business and industrial environment. Written cases. Prereq: perm.

***530. Information Management (3)**

Analysis of basic data processing activities, rhochrematics, information flows in business organizations within a total systems framework. Systems analysis, cases, and individual research problems. Prereq: perm.

681. Research in Business and Industrial Communications (4)

Prereq: perm.

691. Seminar in Business and Industrial Communications (4)

Prereq: perm.

695. Thesis (as recommended by dept.)

BUSINESS LAW

(Minor only)

Howard, Kloss (chairman), Marinelli.

A graduate major in business law is not available. A minor may be developed in this area of study. To begin work in business law, the student must have completed basic courses satisfactory to the department.

500. Legal Environment of Business (4)

Specifically designed for M.B.A. candidates who have not had business law in the undergraduate curriculum. *Howard, Kloss, Marinelli*

***542. Law of Real Estate (3)**

Property law as an institution and analysis of creation, transfer and relationship of various legal interests in land. Prereq: perm.

Howard, Kloss, Marinelli

***562. Law of Estates and Trusts (3)**

Law as it pertains to decedent's estates including law of wills, intestate succession and trusts. Prereq: perm. *Howard, Kloss, Marinelli.*

***575. Government and Business (3)**

Study of governmental regulatory environment of business including analysis of statutes, court decisions and rulings affecting policy decisions. Prereq: perm. *Howard, Kloss, Marinelli*

CHEMICAL ENGINEERING

(See Engineering)

CHEMISTRY

Breivogel, Clearfield, Day, Hendricker, Houk, Huntsman (chairman), Ingham, Jewett, Kline (graduate committee chairman), Latz, Paudler, Pfeiffer, Sympton, Tong, Westenbarger, Winkler.

To begin a graduate major in chemistry the student must have completed a full year's work in analytical chemistry, organic chemistry, physical chemistry, calculus, and physics.

The minimum undergraduate preparation for a graduate minor in chemistry includes general chemistry and introductory courses in analytical and organic chemistry.

Students beginning graduate work in chemistry are required to take an entrance examination covering inorganic, analytical, organic, and physical chemistry. This examination is administered during registration week and the results are consulted in planning the course work of the students.

***500. Qualitative Organic Analysis (5)**

Separation and identification of organic compounds by classical and modern methods. 3 lec., 6 lab.

501. Organic Chemistry Survey (5)

Survey of organic chemistry for entering graduate students.

***502. Spectroscopic Methods in Organic Chemistry (3)**

Modern spectroscopic methods as employed in organic chemical research: NMR, IR, UV, ESR, and Mass Spectrometry.

***503. Advanced Organic Chemistry (3)**

Advanced course in organic chemistry dealing primarily with stereochemistry and reaction mechanisms.

504. Advanced Organic Chemistry (3)

Advanced course in organic syntheses. Prereq: 503.

***520. Chemical Literature (3)**

Chemical literature in journals, handbooks, monographs, and patents. Prereq: reading knowledge of German.

521. Advanced Biochemistry (3)

Selected topics of current interest in biochemistry.

***526. Advanced Analytical Chemistry (4)**

Lecture course in classical analytical chemistry.

***527. Instrumental Methods of Analysis (5)**

Methods of instrumental analysis: potentiometry, voltammetry, coulometry, emission and absorption spectroscopy, X-ray methods, chromatography. 3 lec., 6 lab.

***528. Chemical Instrumentation (4)**

Survey in fundamentals of electronics emphasizing circuitry in modern chemical instruments. 3 lec., 3 lab.

551-552. Chemical Thermodynamics (3-3)**553-554-555. Physical Chemistry (3-3-3)**

Kinetic theory, structure of matter, thermodynamics, chemical equilibrium, solutions, and rates of reactions. (*Not open to chemistry majors.*)

556. Advanced Physical Chemistry (3)

Advanced topics in physical chemistry including thermodynamics, statistical mechanics, atomic and molecular structure and spectra, rate processes and transport phenomena.

561. Introductory Quantum Chemistry (4)**576. Modern Inorganic Chemistry (4)*****577. Synthetic Methods of Inorganic Chemistry (2-3)**

Theoretical principles and practices of synthesis, purification and characterization of inorganic substances. 1 lec., 3-6 lab., Prereq: 576.

578. Theoretical Inorganic Chemistry (3)

Theoretical principles underlying physical and chemical behavior of inorganic substances. 3 lec., Prereq: 561, 576.

***579. Radiochemistry (4)**

Introductory course in application of isotopes to problems in chemistry; safe handling of radioactive material; and detection and determination of radiation.

595. Research Techniques (3)

Important skills and techniques of chemical research including glassblowing, vacuum techniques, separation methods, etc.

695. Research and Thesis (as recommended by dept.)**701. Advanced Organic Chemistry (3)**

Theoretical aspects of organic chemistry. Prereq: 504.

702. Physical Organic Chemistry (3)

Application of modern concepts to study of structure and reactivity in organic reactions of various mechanistic classes. Prereq: 701.

703. Heterocyclic Chemistry (3)

Theoretical and synthetic aspects of heterocyclic chemistry. Prereq: 701.

704. Organometallic Chemistry (3)

Prereq: 501, 576, or equiv.

705. Natural Products Chemistry (3)

Terpenes, steroids, alkaloids, and other natural products. Prereq: 701.

720. Special Topics in Organic Chemistry (3)

Selected topics of current interest. Prereq: 701.

725. Organic Chemistry Seminar (1)

Selected topics from current literature presented by participating students and staff.

726. Electroanalytical Chemistry (4)

Fundamentals and applications of potentiometry, conductometric titrations, coulometry, voltammetry, amperometric titrations, chronopotentiometry. 3 lec., 3 lab. Prereq: 527.

727. Spectrochemical Analysis (3)

Fundamentals and analytical applications of atomic absorption and emission and molecular absorption and emission. 3 lec., 3 lab. Prereq: 527.

730. Special Topics in Analytical Chemistry (3-5)

Selected topics of current interest: electronics, separations, optical rotatory dispersion and circular dichroism.

745. Analytical Chemistry Seminar (1)

Required of analytical chemistry majors.

751. Statistical Thermodynamics (3)

Prereq: 552.

753. Chemical Applications of Group Theory (4)**754. Chemical Quantum Mechanics (3)**

Prereq: 561.

755. Solutions (3)

Selected topics in solution thermodynamics such as stoichiometry, determination of equilibrium constants, activity coefficients, and other thermodynamic properties of solutions; theories of electrolytes; electrochemistry; and transport phenomena.

756. Chemical Kinetics (3)

Experimental methods of obtaining reaction rates, interpretation of rate data, and relationships between mechanism of reactions and rate equations of reactions.

757. Solid State Chemistry (3)

Prereq: 561.

759. Crystallography (3)

Prereq: perm.

760. Special Topics in Physical Chemistry (2-3)

Doctoral level courses in specialized research areas. Topics (one per quarter) of current interest such as: magnetochemistry, molecular vibrations, theory of solutions, etc. Prereq: perm.

770. Physical Chemistry Seminar (1)

Required of physical chemistry majors.

776. Chemistry of the Representative Elements (3)

Descriptive chemistry of A-group elements. 3 lec., Prereq: 576 or equiv.

777. Chemistry of the Transition Elements (3)

Descriptive chemistry of transition elements and their coordination compounds. 3 lec., Prereq: 578.

778. Chemistry of the Heavy Elements (3)

Descriptive chemistry of lanthanides, actinides and selected heavy metals. 3 lec., Prereq: 578.

779. Physical Methods of Inorganic Chemistry (2)

Modern methods of study of structure and properties of inorganic substances. Prereq: 578.

780. Seminar in Inorganic Chemistry (1)**790. Special Topics in Inorganic Chemistry (2-3)**

Topics of special interest to inorganic chemistry majors. Inorganic mechanics (2 lec.); Electron deficient compounds (2 lec.); Ligand field theory (3 lec.); Advanced synthetic methods (6 lab.).

895. Research and Dissertation (as recommended by dept.)**CHILD DEVELOPMENT**

(See Home Economics)

CIVIL ENGINEERING

(See Engineering)

CLASSICAL LANGUAGES

(Minor in Latin only)

Hultgren, Murphy (chairman and graduate committee chairman).

No graduate program in Greek is offered.

The prerequisite for a graduate minor in Latin is 18 hours of Latin above two high school units.

501. Studies in Roman Life (3)

Specialized study of selected topics. (Winter quarter, 1967-68 and as needed) *Hultgren*

511, 512, 513. Studies in Latin Literature of the Republic (3, 3, 3)

Extensive reading or study of special topics in the period. (1969-70)

515, 516, 517. Studies in Latin Literature of the Early Empire (3, 3, 3)

Extensive reading or study of special topics in the period. (1967-68) *Murphy*

519, 520, 521. Graduate Readings in Latin Literature (3, 3, 3)

Reading and essays to complement undergraduate work in Latin. (1968-69)

533. Special Work in Latin Syntax (3)

Development of style in writing Latin prose. (Spring quarter, 1967-68 and as needed)

Murphy

540. **Special Problems in Latin (2-6, max. 12)**
Investigation of selected phases of Classical study. (as needed)

CLOTHING

(See Home Economics)

COMMUNICATION

INTERPERSONAL COMMUNICATION

RADIO-TELEVISION

SPEECH PATHOLOGY, AUDIOLOGY AND SPEECH SCIENCE

Kantner (director), Weaver (graduate coordinator).

The Master's Degree

Prospective graduate students in communication should present a minimum of 36 quarter hours of undergraduate work, including basic courses in any or all of the following specialized areas: communication theory, public address, rhetoric, speech education, general speech, speech pathology, audiology, speech science, radio-television, organizational communication, and areas related to the course of study to be pursued. The suitability of courses in related areas is determined by the department in which the student is enrolled. The total program, graduate and undergraduate, must include at least three quarter hours in each of the three departments in the school.

Academic ability, experience records, and personal recommendations are considered in the admission of students to the graduate program. Those accepted with less than the minimum course requirements will be expected to make up the deficiency through further work at the undergraduate level or additional graduate courses, according to the needs of the individual student.

Introduction to Graduate Study, 501, is a general requirement and Speech and Higher Education, 627, is recommended for teaching assistants and those planning to teach in college.

The minimum requirements for the degree are 45 graduate hours plus thesis. These requirements include a major of not less than 24 hours and a minor of not less than 12 hours. The major may be any one of the specialized areas named above. The minor may be in another specialized area within the same department or in another department of the School of Communication, in a related disci-

pline, or divided between two disciplines with at least 9 hours in each.

Non-thesis programs are available at the option of the departmental faculty. Each request is considered individually in the light of the student's professional goals. If approved, equivalent course work, or research projects, or professional experience is substituted for the thesis.

The Doctoral Program

Applications for admission to graduate study at the doctoral level are considered individually by the staff members in the major area. To be eligible for admission without condition, an applicant must have completed the master's degree in the field of communication, or the substantial equivalent of the course requirements for this degree, and show evidences of superior scholarship, a genuine interest in research, good character, and other personal attributes appropriate to a potential member of a learned profession.

The doctoral program provides for the acquisition of a relatively broad background in the general field of communication or for concentrated study in one or more areas of special interest. Major areas of study are the same as those listed for the master's degree above:

The general course requirements for the doctorate are:

1. a total of 150 quarter hours of graduate credit of which up to 24 hours may be earned for the dissertation
2. a major of at least 48 hours
3. a minor outside the School of Communication of at least 18 hours
4. a minor within the School of Communication of at least 14 hours or a second outside minor of at least 18 hours
5. the remaining 42 or 46 hours to be distributed among any of the categories above or in any appropriate elective courses which the student, with the approval of his guidance committee, believes will contribute to his professional competence.

The minor in communication may be taken in any of the specialized areas. The outside minor may, with the approval of the adviser and his guidance committee, be in any discipline that is related to the area of specialization or serves to provide a broad scholarly background for the student. There are no general departmental requirements; however, each department sets up such requirements for its own majors as are deemed appropriate. The total program is planned by the student

working with his adviser, subject to the approval of his committee.

INTERPERSONAL COMMUNICATION

Andersch, Boase (chairman), Bostrom, Faules, Foster, Goyer, Timmis, Wagner, Weaver, Williams, Wiseman.

501. Introduction to Graduate Work (3)
Men, movements, and professional literature in field of speech. Introduction to types and methods of research. *Kantner*

***505. Principles of Conference Leadership (3)**

Study of group process applied to problem solving discussion and conferences. Emphasis on leadership methods and skills. Prereq: perm. *Wiseman*

506. Psychology of Communication (4)

The processes of communication with application to the social sciences. (Same as Psych. 506.) (Fall quarter) *Klare*

***525. Direction of Forensic Programs (3)**

Organization of forensic programs, management of inter-school contests and tournaments, principles of coaching and judging. Practical application in University forensic program. *Foster*

***532. Creativity in Communication (3)**

Study of creativity and its relationship to communication. *Wiseman*

***533. Application of General Semantics (3)**

Chief formulations from general semantics. Special emphasis on application to interpersonal communication. Prereq: perm. *Wiseman*

***535. Theories of Argument (3)**

Relationships between formal logic and rhetorical systems of argument. Intensive study of fallacies and of experimental findings related to the study of argument. *Foster*

***542. Social Communication and Persuasion (3)**

Process of communication and attitude change, survey of general theories and typical research, analysis of contemporary persuasion, projects in experimental persuasion. *Bostrom*

***544. Communication Constructs and Systems (3)**

Analysis of theoretical constructs and systems of communication behavior. Emphasis on relationship of these constructs to epistemology. *Faules*

***546. Communication and the Campaign (3)**
Analysis of the process of communication as it occurs in the campaign situation. *Faules*

***548. Psychology of Speech (3)**

Psychological principles active in communication, such as concept-reference; vocal, visual, and verbal cues; attention, listening, perception, verbal conditioning, and phonetic symbolism. *Weaver*

558. Responsibilities and Freedom of Speech in Communication (4)

Review of ethical background, social and political foundations, and famous cases in freedom of speech. *Kantner*

***560. Contemporary Public Address (4)**

Analysis of principal speakers and settings since 1933. World leaders such as Roosevelt, Hitler, and Churchill; American political speakers such as Dewey, Stevenson, and McCarthy; and social leaders such as Thomas, Graham, and King. *Bostrom*

582. Tests and Measurements in Speech Communication (2)

Problems and procedures related to measurement of speech communication processes; idea formation and organization; speaking abilities, skills, and attitudes. *Goyer*

602. Research Methods (3)

Problems, responsibilities, methods, and techniques of scholarship and research in interpersonal communication. Prereq: 501. *Weaver*

627. Speech and Higher Education I (4)

Current problems and challenges facing higher education; evolution of curricula in speech, theater, radio-television, and speech pathology and audiology; analysis of organizational structures of speech departments. *Andersch*

628. Speech and Higher Education II (4)

Philosophy of general education offerings in speech; analysis of basic courses and service functions of the speech department with emphasis on problems and challenges inherent in these programs. *Andersch*

629. Seminar in Speech Education (4)

Isolation and analysis of problems of teaching speech in college; individual research projects and reports. *Andersch*

640. Communication Theories and Models (4)

Survey and analysis of current theories and models of communication process including

their respective points of integration and divergence. Emphasis on relationship between structure of communication process and its identifiable ingredients as revealed in models. *Goyer*

642. Theories and Processes of Persuasion (4)

Contemporary theoretical models and variables in persuasive environment; effects of implementing persuasive principles and techniques. *Goyer*

644. Listening Behavior (4)

Analysis and evaluation of listening process in terms of its unique operational characteristics, theory and research. *Weaver*

645. Communication Process in Small Groups (4)

Theory and research in group social system, group modification of individual judgment, leadership styles, group vs. individual goals, and intra-group lines of communication in small problem-solving and learning groups. *Wiseman*

646. Communication Process in Organizations (4)

Interaction between organizational structure and communication within organizations. Emphasis on theoretical and methodological analysis. *Faules*

647. Verbal Communication and Attitude Change (4)

Analysis of interaction of attitudes and verbal communication process emphasizing contemporary models of attitude and attitude change. Field study and laboratory analysis. *Bostrom*

648. Communication and Cognitive Processes (4)

Analysis and evaluation of relationships between communication process and cognitive development in man, with particular emphasis on man's symbolizing ability and relationship between symbolic and physical reality. *Goyer*

649. Communication Process: Special Topics (4)

Critical and intensive examination of single topic such as principles and analysis of cybernetics, theories of dyadic communication, etc.

650. Classical Rhetorical Theory (4)

Principles of rhetoric based upon the writings of Aristotle, Plato, Cicero, and Quintilian. Individual research studies of classical theorists and practitioners. *Williams*

654. Medieval and Renaissance Rhetorical Theory (4)

Rhetorical theory and practice during late Roman Empire, Middle Ages, and Renaissance. Emphasis on Renaissance linking of ancient to modern rhetoric. *Williams*

656. Modern Rhetorical Theory (4)

Rhetorical theories of Campbell, Blair, Whately, and Adams; rediscovery of rhetoric of persuasion in 20th century. *Williams*

658. Responsibilities and Freedom of Speech in Communication (4)

Review of ethical background, social and political foundations, and famous cases in freedom of speech. *Kantner*

662. Early American Public Address to 1820 (4)

Speaking in Colonial, Revolutionary, and Jeffersonian eras. *Boase*

664. Sectional Conflict and Public Address—1820-1880 (4)

Speaking during antebellum, Civil War, and Reconstruction eras. *Boase*

666. American Public Address in Recent Times—1880-1933 (4)

Impact of populism, imperialism, progressivism, world war, normalcy, and depression on public address. *Boase*

672. British Public Address: Wars of Roses to Age of Pitt (4)

Methods of communication and rhetorical theories of masters of the period, including Strafford, Chatham, Burke, Fox, and Pitt. Movements of period, interaction of public address with philosophic ideas, social forces, and historical events. *Timmis*

674. British Public Address: Napoleonic Wars to Age of Churchill (4)

Speaking and rhetorical theories of Erskine, Bright, Gladstone, Disraeli, and Churchill. Analysis of movements including nationalism, imperialism, social reform, and political reform. Interaction of public address with philosophic ideas, social forces, and historical events. *Timmis*

676. European Public Address (4)

Speaking and rhetorical theories of important German, Russian, French, and Italian speakers. Analysis of the rhetoric of revolution, nationalism, imperialism, communism, fascism, and republicanism. *Timmis*

679. Seminar in Rhetoric and Public Address (4)

Special topics in rhetorical theory, history of public address, rhetorical criticism or speech analysis.

680. Rhetorical Criticism (4)

Theories and critical methods of selected ancient and modern writers. Class and individual projects. *Williams*

682. Communication Research Methodologies (4)

Nature and selection of communication research problems; development of strategies, techniques, and designs; and assessment of current methods of measurement of communication processes. *Goyer*

694. Research (3-12)

Individual research on special problems. Projects must be approved prior to registration. Prereq: perm.

695. Thesis (as recommended by dept.)

727. Speech and Higher Education I (4)

Current problems and challenges facing higher education; evolution of curricula in speech, theater, radio-television, and speech pathology and audiology; analysis of organizational structures of speech departments. *Andersch*

728. Speech and Higher Education II (4)

Philosophy of general education offerings in speech; analysis of basic courses and service functions of the speech department with emphasis on problems and challenges inherent in these programs. *Andersch*

729. Seminar in Speech Education (4)

Isolation and analysis of problems of teaching speech in college; individual research projects and reports. *Andersch*

740. Communication Theories and Models (4)

Survey and analysis of current theories and models of communication process including their respective points of integration and divergence. Emphasis on relationship between structure of communication process and its identifiable ingredients as revealed in models. *Goyer*

742. Theories and Processes of Persuasion (4)

Contemporary theoretical models and variables in persuasive environment; effects of implementing persuasive principles and techniques. *Goyer*

744. Listening Behavior (4)

Analysis and evaluation of listening process in terms of its unique operational characteristics, theory and research. *Weaver*

745. Communication Process in Small Groups (4)

Theory and research in group social system, group modification of individual judgment, leadership styles, group vs. individual goals and intra-group lines of communication in small problem-solving and learning groups. *Wiseman*

746. Communication Process in Organizations (4)

Interaction between organization structure and communication within organizations. Emphasis on theoretical and methodological analysis. *Faules*

747. Verbal Communication and Attitude Change (4)

Analysis of interaction of attitudes and verbal communication process emphasizing contemporary models of attitude and attitude change. Field study and laboratory analysis. *Bostrom*

748. Communication and Cognitive Processes (4)

Analysis and evaluation of relationships between communication processes and cognitive development in man, with particular emphasis on man's symbolizing ability and relationship between symbolic and physical reality. *Goyer*

749. Communication Process: Special Topics (4)

Critical and intensive examination of single topic such as principles and analysis of cybernetics, theories of dyadic communication, etc.

750. Classical Rhetorical Theory (4)

Principles of rhetoric based upon writings of Aristotle, Plato, Cicero, and Quintilian. Individual research studies of classical theorists and practitioners. *Williams*

754. Medieval and Renaissance Rhetorical Theory (4)

Rhetorical theory and practice during late Roman Empire, Middle Ages, and Renaissance. Emphasis on Renaissance linking of ancient to modern rhetoric. *Boase*

756. Modern Rhetorical Theory (4)

Rhetorical theories of Campbell, Blair, Whately, and Adams; rediscovery of rhetoric of persuasion in 20th century. *Williams*

762. Early American Public Address to 1820 (4)

Speaking in Colonial, Revolutionary, and Jeffersonian eras. *Boase*

764. Sectional Conflict and Public Address—1820-1880 (4)

Speaking during antebellum, Civil War, and Reconstruction eras. *Boase*

766. American Public Address in Recent Times—1880-1933 (4)

Impact of populism, imperialism, progressivism, world war, normalcy, and depression on public address. *Boase*

772. British Public Address: Wars of Roses to Age of Pitt (4)

Methods of communication and rhetorical theories of masters of the period, including Strafford, Chatham, Burke, Fox, and Pitt. Movements of period, interaction of public address with philosophic ideas, social forces, and historical events. *Timmis*

774. British Public Address: Napoleonic Wars to Age of Churchill (4)

Spring and rhetorical theories of Erskine, Bright, Gladstone, Disraeli, and Churchill. Analysis of movements including nationalism, imperialism, social reform, and political reform. Interaction of public address with philosophic ideas, social forces, and historical events. *Timmis*

776. European Public Address (4)

Speaking and rhetorical theories of important German, Russian, French, and Italian speakers. Analysis of the rhetoric of revolution, nationalism, imperialism, socialism, communism, fascism, and republicanism. *Timmis*

779. Seminar in Rhetoric and Public Address (4)

Special topics in rhetorical theory, history of public address, rhetorical criticism or speech analysis.

780. Rhetorical Criticism (4)

Theories and critical methods of selected ancient and modern writers. Class and individual projects. *Williams*

782. Communication Research Methodologies (4)

Nature and selection of communication research problems; development of strategies, techniques, and designs; and assessment of current methods of measurement of communication processes. *Goyer*

794. Research (3-12)

Individual research on special problems. Projects must be approved prior to registration. Prereq: perm.

895. Dissertation (as recommended by dept.)

RADIO-TELEVISION

Greer, Holt, Holmes (chairman), Miller, Pagel, Powell, Saunders, Spalding, Welling.

***510. Principles of Television Production (3)**

Production aspects of television and general principles of equipment operation and crew responsibilities. 2 lec., 2 lab. (Not open to radio-television majors for credit.) *Marshall*

***513. Advanced Radio Production-Direction (5)**

Investigation of special problems in program development for radio. *Greer*

***518. Advanced Television Production-Direction (5)**

Individual and group projects in development and production of a television program or series, stressing experimental techniques. *Spalding*

***540. Radio and Television in Education (3)**

Summary, analysis, application, and evaluation of TV and radio research in the teaching-learning process. *Holmes*

***541. Instructional Methods in Educational Radio-Television (5)**

Practical applications of television in the public school classroom. Utilization of television programs as adjuncts to instruction. Preparation of instructional units for telecasting. 3 lec., 4 lab. *Pagel*

***551. Broadcast Station Operation (5)**

Functions, structure and organization of broadcasting stations; case studies relating to problems of personnel, sales, programming, and management. 5 lec. *Saunders*

***555. Broadcast Programming (5)**

Study of programming concepts, resources, and costs; use of research in program selection and scheduling. 5 lec. *Holt*

***567. Comparative Systems of Broadcasting (3)**

Broadcasting systems of other countries in terms of relevant political, social, economic and cultural influences. 3 lec. *Powell*

569. International Broadcasting (3)

Development, effect and control of international broadcasting as an instrument of foreign policy. 3 lec. *Powell*

***570. Broadcasting and the Public (3)**

Interrelationships between broadcaster, government and the public; bases for evaluation of role and significance of broadcasting in society. 3 lec. *Saunders*

602. Research Methods in Mass Communication (4)

Problems, responsibilities, methods and techniques of scholarship and research in radio-television. Prereq: 501.

631. Dramatic and Documentary Writing (5)

Writing and critique of the form, structure, and presentation of both dramatic and non-dramatic programs and series. 5 lec. *Miller*

642. Seminar in Educational Radio-Television (4)

Intensive examination and evaluation of radio-television utilization in the educational process.

671. Social Impact of Mass Communication Broadcasting (4)

Group and individual investigation into research methodology and literature on effects of mass media upon society, with particular reference to broadcasting. *Saunders*

684. Seminar in Criticism (4)

Intensive critical analysis of broadcast programs and programs scheduled from socio-cultural, literary, political, and broadcast industry points of view. *Spalding*

686. Colloquium in Broadcasting (1-5)

Study and analysis of current issues and problems in radio-television. *Holt*

694. Research (3-12)

Individual research on special problems. Projects must be approved prior to registration. Prereq: perm.

695. Thesis (as recommended by dept.)**702. Research Methods in Mass Communication (4)**

Problems, responsibilities, methods, and techniques of scholarship and research in radio-television. (Not open to candidates for master's degree.)

742. Seminar in Educational Radio-Television (4)

Intensive examination and evaluation of radio-television utilization in the educational process.

743. Seminar in Pedagogy (4)

Analysis of the problems, methods, and techniques of the teaching of radio-television at the college level.

750. Broadcast Economics (5)

Economic structure of broadcasting industry, economies of its units, and its economic relationships with other industries. Case studies in budget planning and cost control. 5 lec. *Saunders*

753. Broadcasting Law and Regulations (5)

Socio-political control of broadcasting; effect of laws, regulations and public pressures upon programming policies. 5 lec. *Powell, Welling*

769. International Broadcasting (3)

Analysis of development, effect and control of international broadcasting as an instrument of foreign policy. 3 lec. *Powell*

771. Social Impact of Mass Communication-Broadcasting (4)

Group and individual investigation into research methodology and literature on effects of mass media upon society, with particular reference to broadcasting. *Saunders*

779. History of Broadcasting (5)

Origin of systems of radio and television communication and their development to present day. 5 lec. *Spalding*

784. Seminar in Criticism (4)

Intensive critical analysis of broadcast programs and program schedules from socio-cultural, literary, political, and broadcast industry points of view. *Spalding*

786. Colloquium in Broadcasting (1-5)

Study and analysis of current issues and problems in radio-television. *Holt*

794. Research (3-12)

Individual research on special problems which must be approved prior to registration. Prereq: perm.

895. Dissertation (as recommended by dept.)**SPEECH PATHOLOGY, AUDIOLOGY AND SPEECH SCIENCE**

Dean, Fokes, Ham (chairman), LaFollette, McPherson, Shallop, Williams.

- *509. Phonetics II (3)**
Phonetics in linguistics. Experimental investigation of speech sound production, and advanced training in phonetic transcription. *Fokes*
- *514. Speech and Hearing Mechanism II (3)**
Structures, musculature, functions, and neurology involved in audition and speech. *Ham*
- 517. Stuttering III (3)**
Stuttering related to theory, research, and therapy. Students select and develop an area of interest. Prereq: perm. *Williams*
- *522. Diagnostic Procedures in Speech Pathology (3)**
Diagnoses in evaluation of speech and language problems. Screening tests, use of statistics in testing, basic interview, and history procedures. Prereq: perm. *Ham*
- 538. Phonetics III (3)**
Application of phonetics to problems of domestic and foreign dialects. Consideration of importance of linguistics. Prereq: perm. *Kantner*
- *572. Auditory Disorders in Children (3)**
Identification audiometry and differential diagnosis of children with suspected auditory disorders. Prereq: 424. *McPherson*
- 573. Clinical Audiology I (3)**
Materials and techniques employed in speech audiometry and hearing aid evaluation. Prereq: perm. *McPherson*
- 574. Clinical Audiology II (3)**
Differential diagnosis of auditory disorders. Emphasis on test batteries which may reveal cochlear versus retrocochlear and functional versus organic hearing problems. Prereq: perm. *McPherson*
- 575. Clinical Audiology III (3)**
Electrophysiological techniques for measurement of hearing sensitivity. Emphasis on EEG, GSR, and electro-acoustic and acoustic measurements of middle-ear impedance. Prereq: perm. *McPherson*
- 602. Research Methods in Speech and Hearing (1-3)**
Research of methodologies and critical examination of existing research. Required for master's degree candidates electing thesis option. Not open to non-thesis students. May be repeated for credit. No more than three hours counts toward degree.
- 612. Language Acquisition and Behavior (3)**
Language and cognitive development, verbal learning, and structural properties of speech. Prereq: perm. *Fokes*
- 620. Seminar in Articulation (3)**
Historical development, research, and theoretical approaches to articulation, experimental applications in therapy. Prereq: perm.
- 621. Vocal Pathologies (3)**
Anatomy and the normal physiology of the vocal mechanism. Organic and functional voice problems and related therapy. Research problems in diagnosis and therapy. Prereq: perm. *Williams*
- 623. Advanced Diagnostic Procedures in Speech Pathology (3)**
Special evaluative techniques in speech pathology, laryngeal examinations, differential diagnosis, special diagnoses, and tests. Prereq: perm. *Ham*
- 625. Clinic Administration (3)**
Organization and administration of clinical programs in speech pathology and audiology. Prereq: perm. *Ham*
- 626. Language Problems of Mentally Retarded (3)**
Evaluating level of language development of trainable mentally retarded children. Techniques for assisting mentally retarded children to develop language. Prereq: perm. *Dean*
- 627. Speech Disorders and Orofacial Anomalies (3)**
Developmental and traumatic dysfunctions of facial structures. Recent literature in orofacial anomalies related to speech, audiological, psycho-social, physical, and surgical problems. Prereq: perm. *Williams*
- 628. Therapy Procedures with Brain Damaged Children (3)**
Causes, evaluation, and training procedures for children with language deficiencies resulting from early brain damage. Prereq: perm. *Dean*
- 629. Aphasia (3)**
Aphasia, etiologies in adult aphasias, evaluation and rehabilitation of the adult aphasic. Prereq: perm. *Dean*
- 630. Cerebral Palsy (3)**
Cerebral palsy, etiologies, related problems; theories and procedures for habilitation. Prereq: perm. *Dean*

633. Professional Training Seminar (2-4, max. 10)

Professional development and certification. (*Does not count toward degree.*)

634. Voice Seminar (3)

Problems related to vocal pathologies, treatment, and related research. Students select and develop an area of interest. Prereq: perm.

635. Practicum in Diagnosis and Therapy (1-15)

Diagnosis, planning of therapy, therapy experience. One staff meeting per week. May be repeated. Credit beyond three hours must be approved. *Williams*

652. Experimental Phonetics I (3)

Acoustic properties of speech signals and their importance for speech reception. 2 lec., 2 lab. Prereq: perm. *Shallop*

653. Experimental Phonetics II (3)

Acoustical and physiological phonetics. Required projects and extensive reading. 2 lec. and required lab. Prereq: 652. *Shallop*

654. Experimental Instrumentation (3)

Instrumentation in audiology and speech science. Prereq: perm. *Shallop*

676. Experimental Audiology I: Psychoacoustics (3)

Application of standard psycho-physical techniques and theory of signal detection to audiological research. Prereq: perm. *McPherson*

677. Experimental Audiology II: Bioacoustics (3)

The ear as transducer and analyzer. Consideration of electrophysiological and mechanical properties of the ear. Prereq: perm. *McPherson*

690. Research Design (3)

Philosophy of research, formulation of hypotheses, design of experiments, presentation of research findings and interpretation of results. Limited to those electing non-thesis option.

694. Directed Study and Research (1-12)

Directed study and/or research approved by staff prior to registration. Final product reviewed by faculty committee. May be repeated for credit.

695. Thesis (as recommended by dept.)**702. Research Methods in Speech and Hearing (1-3)**

Research methodologies and critical examination of existing research. Required for master's degree candidates electing thesis option. Not open to non-thesis students. May be repeated for credit. No more than three hours counts toward degree.

712. Language Acquisition and Behavior (3)

Language and cognitive development, verbal learning, and structural properties of speech. Prereq: perm. *Fokes*

717. Stuttering III (3)

Stuttering related to theory, research and therapy. Students select and develop an area of interest. Prereq: perm. *Williams*

720. Seminar in Articulation (3)

Historical development, research, and theoretical approaches to articulation, experimental applications in therapy. Prereq: perm.

721. Vocal Pathologies (3)

Anatomy and normal physiology of vocal mechanism. Organic and functional voice problems and related therapy. Research problems in diagnosis and therapy. Prereq: perm. *Ham*

723. Advanced Diagnostic Procedures in Speech Pathology (3)

Special evaluative techniques in speech pathology, laryngeal examinations, differential diagnosis, special diagnoses and tests. Prereq: perm. *Ham*

725. Clinic Administration (3)

Organization and administration of clinical programs in speech pathology and audiology. Prereq: perm. *Ham*

726. Language Problems of the Mentally Retarded (3)

Evaluating level of language development of trainable mentally retarded children. Techniques for assisting mentally retarded children to develop language. Prereq: perm. *Dean*

727. Speech Disorders and Orofacial Anomalies (3)

Developmental and traumatic dysfunctions of facial structures. Recent literature in orofacial anomalies related to speech, audiological, psycho-social, physical, and surgical problems. Prereq: perm. *Williams*

728. Therapy Procedures with Brain Damaged Children (3)

Causes, evaluation, and training procedures for children with language deficiencies resulting from early brain damage. Prereq: perm. *Dean*

729. Aphasia (3)

Aphasia, etiologies in adult aphasia, evaluation and rehabilitation of the adult aphasic. Prereq: perm. *LaFollette*

730. Cerebral Palsy (3)

Cerebral palsy, etiologies, related problems; theories and procedures for habilitation. Prereq: perm. *Dean*

731. Seminar in Speech Pathology (3)

Current literature and recent research. Prereq: perm. May be repeated for credit. *Ham*

732. Supervisory Training (3, max. 6)

Preparation of advanced students for employment in teaching-training programs. Individual assignment and specific experience in diagnosis, therapy, and research supervision. Prereq: perm. *Williams*

733. Professional Training Seminar (2-4, max. 10)

Professional development and certification. Does not count toward degree.

734. Voice Seminar (3)

Problems related to vocal pathologies, treatment, and related research. Students select and develop an area of interest. Prereq: perm.

735. Practicum in Diagnosis and Therapy (1-15)

Diagnosis, planning of therapy, therapy experience. One staff meeting per week. May be repeated. Credit beyond three hours must be approved.

738. Phonetics III (3)

Application of phonetics to problems of domestic and foreign dialects. Consideration of importance of linguistics. Prereq: perm. *Kantner*

752. Experimental Phonetics I (3)

Acoustic properties of speech signals and their importance for speech reception. 2 lec., 2 lab. Prereq: perm. *Shallop*

753. Experimental Phonetics II (3)

Acoustical and physiological phonetics. Re-

quired projects and extensive reading. 2 lec. and required lab. Prereq: 652 or 752. *Shallop*

754. Experimental Instrumentation (3)

Instrumentation utilized in audiology and speech science. Prereq: perm. *Shallop*

755. Seminar in Speech Science (3)

Topics in speech science and related areas. Required papers. Prereq: perm. *Shallop*

756. Seminar in Research Problems (3)

Organization and preparation of research in scholarly form. Analysis and evaluation of research writing in various areas. Required application of principles to seminar projects. *Shallop*

774. Clinical Audiology II (3)

Differential diagnosis of auditory disorders. Emphasis on test batteries which may reveal cochlear versus retrocochlear and functional versus organic hearing problems. Prereq: perm. *McPherson*

775. Clinical Audiology III (3)

Electrophysiological techniques for measurement of hearing sensitivity. Emphasis on EEG, GSR, and electro-acoustic and acoustic measurements of middle-ear impedance. Prereq: perm. *McPherson*

776. Experimental Audiology I: Psychoacoustics (3)

Application of standard psycho-physical techniques and theory of signal detection to audiological research. Prereq: perm. *McPherson*

777. Experimental Audiology II: Bioacoustics (3)

The ear as transducer and analyzer. Consideration of electrophysiological and mechanical properties of the ear. Prereq: perm. *McPherson*

778. Seminar in Audiology (3)

Current problems and areas of research in audiology. Individual reading projects and seminar reports. Prereq: perm. *McPherson*

794. Directed Study and Research (3)

Directed study and/or research approved by staff prior to registration. Final product reviewed by faculty committee. May be repeated for credit.

895. Dissertation (as recommended by dept.)

COMPARATIVE ARTS

Ahrendt, Anderson, Boase, Brockett, Clark, Conover, Gaffney, Hall, Jennings, Kantner, Katz, Kortlander, Lane, Leach, Trisolini (chairman), Trump, Vickers, Walker, Weiner, White, Wortman.

The Doctor of Philosophy Degree

The curriculum for the Ph.D. program in comparative arts is conceived with a fundamental belief concerning advanced graduate study in the arts in mind. There is no intention in this program to present the student with a choice between scholarship and creative expression. Instead, the program is based on the belief that, for the creative individual, knowledge and understanding of his heritage and the development of acute critical abilities can only enhance his creative spirit, not hinder it.

With this in mind, the general range of course offerings for the doctoral program are arranged to stress the interrelationship of the major art forms. This purpose is achieved through a sequence of comparative studies arranged in chronological order and offered simultaneously within that chronology. All areas of the College of Fine Arts participate by offering graduate courses in a particular historical cycle within their own discipline. These courses are made available to graduate students within each school and to doctoral students in the program in comparative arts. In addition, continual course offerings in the college are available in special areas of study such as Latin American, Oriental and Pre-Columbian arts, music literature, dramatic criticism and composition, city planning, urban design, etc. The department of history, government, comparative literature, philosophy, languages and psychology also offer courses which are available to students in the doctoral program.

Applications for admission to graduate study at the doctoral level in comparative arts will be considered individually by a departmental committee established for this purpose.

In the practical or "studio" aspects of the arts, the doctoral student may select from a wide variety of courses throughout the College of Fine Arts.

Each doctoral student is expected to complete, in addition, a prescribed number of course hours in work outside the College of Fine Arts. Normally this includes, at the least, work with the departments of history, English and philosophy (esthetics). The final research project for the degree must be comparative in nature, including work in at least two areas of the fine arts.

REQUIREMENTS

The minimum course requirements for the student in the Ph.D. program in fine arts consist of at least 90 quarter hours of work beyond the master's degree.

To insure the breadth of interest and background for entrance into the program, each student must meet certain basic requirements. The student entering the program should have completed as a master's degree a program which had as its major emphasis the practical applications in the fine arts area. The following areas should be covered in the total program of the student either by substantial and approved courses at the undergraduate level or in graduate courses:

1. Six hours or two courses or the equivalent in the history of painting and sculpture or the history of architecture.
2. Six hours or two courses or the equivalent in the history of music.
3. Six hours or two courses or the equivalent in the history of visual theater or the history of oratory.

At the doctoral level, the student is expected to pursue the historical and critical elements of the fine arts as his major emphasis. To this end the student's program is expected to encompass the following:

1. At least one course in each of the core areas.
2. At least 18 hours in two core areas.
3. At least two courses in the core areas each quarter.
4. At least 36 hours in the major area exclusive of the applied minor and research and dissertation.
5. An applied minor of 12 hours.
6. A dissertation involving work in at least two areas and not to exceed 16-20 hours of credit.

Students trained at the level of the master's degree in the studio or practical aspects of one of the particular arts will utilize this training as a minor area of study in the doctoral program.

The student is required, as a part of his total program, to demonstrate proficiency in at least two scholarly disciplines outside of, but related to, his area of concentration as determined by the graduate committee of the Department of Comparative Arts. For the doctoral degree in fine arts, these two disciplines may include the following:

1. A reading knowledge of two foreign languages.

2. A reading knowledge of one foreign language plus a minor of at least 12 hours of graduate level work in the literature of a foreign language.

3. A reading knowledge of one foreign language, plus statistics or some other relevant discipline.

Toward the end of the student's sixth full quarter of graduate study, or when the course work is virtually completed, and upon recommendation of the graduate committee in the Department of Comparative Arts, the student must submit a comprehensive examination over his major and minor areas of study. In this examination, the student must demonstrate the ability to make the necessary historical and comparative connections between the major art forms.

The student's final examination prior to the granting of the degree is primarily an examination over the dissertation. This examination may take the form of a formal committee examination or a public presentation of the dissertation by the student. In either case, the examination will be an oral one.

ARCHITECTURE

751. Architecture of Greece and Rome (3)
Shaping of architecture of the classical world by social, religious, climatic, and technical influences, from Mycean to Early Christian periods.

752. Early Mediaeval Architecture of Western Europe (3)

Early Christian, Carolingian, and Romanesque architecture and their relationship to social and religious structures of the times; early Gothic architecture and influence of France in European culture.

753. Architecture of Gothic and Early Renaissance (3)

Space, structure, and style, with emphasis upon economic, social, and religious influences of the 13th, 14th, and 15th centuries.

754. Architecture of Late Renaissance, Baroque, and Rococo (3)

Social, artistic, and religious climates of the period and their influences upon architecture. Emphasis upon Germany, France, and England, with some reference to early Colonial American architecture.

755. Neo-Classicism and Romanticism in Architecture (3)

Greek and Roman revival; effects of Industrial Revolution; and effects of archaeology upon architecture of the 19th century.

756. Beginnings of Modern Architecture (3)
Age of steel and its architectural development from c. 1880 to 1930's.

757. Contemporary Architecture of the Western World (3)

Education, practice, theories, and works of prominent contemporary architects in Europe and America.

758. American Architecture from Colonial to Eclectic Periods (3)

Influences of Old World styles—English, German, French, Spanish, Dutch—upon Colonial architecture and progress of 19th century architecture.

DANCE

778. Seminar in Dance History and Criticism (3)

Pre-Classical, Classical, and Romantic concepts in dance. Various functions of dance as art, ritual, social activity, and their development as spectacle and entertainment considered. Attendance at weekly dance workshop required. Intensive research projects.

779. Seminar in Dance History and Criticism (3)

Modern and contemporary directions in dance. Various functions of dance as art, ritual, social activity, and their development as spectacle and entertainment are considered. Attendance at weekly dance workshop required. Intensive research projects.

MOTION PICTURE

734, 735, 736. Seminar in Motion Picture History (3, 3, 3)

Development of film medium with emphasis on contemporary work including non-dramatic genre. Class and outside viewing of motion pictures. Individual research.

MUSIC

711. Ancient and Medieval Music (3)

Music as artistic and theoretical expression of antiquity and Middle Ages; history of musical styles to c. 1410.

712. Music of the Renaissance (3)

History of musical styles c. 1410-c. 1600.

713. Music of the Baroque Period (3)

History of musical styles c. 1600-c. 1730.

714. Music of the Classic Period (3)

History of musical styles of Rococo and Classicism through first quarter of 19th century.

715. Music of the Nineteenth Century (3)

Music as artistic expression of 19th century Romanticism.

716. Contemporary Music (3)

Music as artistic expression of our time. Study of various styles since c. 1900.

PAINTING AND SCULPTURE**720. Greek Art (3)**

Development between Minoan/Helladic cultures and those of Alexandrian Empire.

721. Roman Art (3)

Motifs and art concepts ranging from Etruscan works to advent of Constantine.

722. Medieval Art (3)

Painting and sculpture from Constantine to Giotto.

723. Italian Renaissance Art (3)

Monuments, motifs, and their implications in Quattrocento Italy.

724. Northern Renaissance Art (3)

Arts of northern Europe to 1530.

725. Art of High Renaissance and Mannerism (3)

Art and theory of the Cinquecento.

726. Baroque and Rococo Art (3)

Painting and sculpture of 17th and 18th centuries.

727. Art of the Nineteenth Century (3)

Developments during and after the Industrial Revolution.

728. Modern Art (3)

Specific movements and artists since 1900.

729. Arts of the United States (3)

Specific problems and patterns from the Colonial era.

730. Arts of the Orient (3)

Selected studies in the arts of India, China, and Japan.

731. Pre-Columbian Art (3)

Arts of early Mexico, Middle and South America.

732. African Art (3)

Arts of the Niger and Congo basins.

733. Ancient Near Eastern Art (3)

Motifs and monuments of Egypt, Mesopotamia, Assyria, and Babylonia.

750. Seminar in Art History (3)**PHOTOGRAPHY****737, 738. History of Photography (3, 3)**

Photography as art, science, and industry. Leading photographers and their contributions.

PUBLIC ADDRESS**760. Classical Rhetorical Theory (4)**

Principles of rhetoric based on writings of Aristotle, Plato, Cicero, and Quintilian. Individual research on classical theorists and practitioners.

761. Medieval and Renaissance Rhetorical Theory (4)

Rhetorical theory and practice during late Roman Empire, Middle Ages and Renaissance. Emphasis on Renaissance linking of ancient to modern rhetoric.

762. British Public Address: Wars of Roses to Age of Pitt (4)

Communication and rhetorical theories of Strafford, Chatham, Burke, Fox, and Pitt.

763. British Public Address: Napoleonic Wars to Churchill (4)

Nationalism, imperialism, social and political reform in the speaking of Erskine, Bright, Gladstone, Disraeli, Churchill and other Parliamentary figures.

764. European Public Address (4)

Rhetoric of revolution, nationalism, imperialism, socialism, communism, and fascism through public address of German, Russian, French, and Italian speakers.

765. Contemporary Public Address (4)

Gandhi, Kennedy, Martin Luther King, and others. Emphasis on style.

766. Early American Public Address to 1820 (4)

Speaking in Colonial, Revolutionary, and Jeffersonian eras.

767. Sectional Conflict and Public Address (4)

Speaking during antebellum, Civil War, and Reconstruction eras.

768. American Public Address in Recent Times, 1880-1933 (4)

Impact of populism, imperialism, progressivism, world war, normalcy, and depression on public address.

THEATER

- 770. Greek Theater and Drama (3)
- 771. Roman and Medieval Theater (3)
- 772. Renaissance Theater and Drama (3)
- 773. Restoration and Eighteenth Century Theater (3)
- 774. Baroque European Theater (3)
- 775. Nineteenth Century European Theater (3)
- 776. Contemporary Theater (3)
- 777. American Theater and Drama (3)

RESEARCH

- 881. Individual Problems (3-9)
- 891. Seminar in Comparative Arts (2)
- 895. Dissertation (as recommended by dept.)

COMPUTER SCIENCE

- *551. Non-numeric Computer Programming and Logic (2)

Computer solution of problems not involving extensive numerical calculations. Problems in natural language analysis and translation, literature search and collation, non-numeric mathematics, artificial intelligence, pattern recognition, etc. *Irwin*

- *552. Introduction to Digital Computer Programming for Business (2)

Computer solution of problems in business. Problems in accounting, quantitative methods, management, etc. Artificial language COBOL used. (Fall and Spring quarters)

- *553. Introduction to Digital Computer Programming for Engineering and the Physical Sciences (2)

Computer solution of problems involving extensive numerical calculations as found in physical sciences, engineering, and numerical mathematics. *Irwin*

- *554. Introduction to Digital Computer Programming for Behavioral, Educational, and Biological Sciences (2)

Problem organization for computer solution using scientifically oriented algorithmic languages such as FORTRAN and PL/1. Logical problem analysis, artificial language syntax and semantics, problem flow, testing and debugging, input/output, artificial intelligence, and use of auxiliary storage. *Irwin*

COUNSELING

(See Education)

DANCE

(See Comparative Arts)

ECONOMICS

Adie, Agapos, Bradfield, Charle, Crewson (chairman), Darcy, De Veau, Gallaway, Kaminow, Koshal, Klingaman, Levine, Levinson, Lovenstein, Mengel, Picard (graduate committee chairman), Potemra, Scully, Shukla, Soltow, Vedder.

A student beginning graduate work in the field of economics should ordinarily have undergraduate training which includes courses in the social sciences or business administration. It is recognized, however, that a wide variety of areas of concentration relate to or provide appropriate background knowledge for advanced study in economics.

Undergraduate courses in principles of economics, money and banking, and statistics will ordinarily be deemed prerequisites for graduate work in this area, although students may be permitted to make up these deficiencies while pursuing a graduate program. In every case the student's undergraduate program must be approved by the departmental admissions committee prior to his beginning graduate work.

All students seeking the Master of Arts degree are requested to take History of Economic Thought, Introduction to Mathematical Economics, Advanced Microeconomic Theory, and Advanced Macroeconomic Theory. Other courses are elective.

The student may choose one of two options: (1) 41 quarter hours plus thesis, or (2) 45 quarter hours plus master's seminar.

- 501, 502. Fundamentals of Economics (4, 4)
Analysis of prices, markets, production, wages, interest, rent, and profits.

- 503. Advanced Microeconomic Theory (4 or 5)

Consumer behavior, production and cost, behavior of the firm in various types of markets (perfect competition, monopoly, oligopoly, etc.), factor pricing, general equilibrium, and welfare economics. Prereq: perm.

- 504. Advanced Macroeconomic Theory (4 or 5)

National income accounting, development of the static Keynesian model and comparison with the classical model, consumption and in-

vestment functions, and simple cycle and growth models (models constructed by Hicks, Kaldor, Domar, and Duesenberry). Prereq: perm.

***505. History of Economic Thought (3-4)**

Major economic doctrines; mercantilists and cameralists, physiocrats, Adam Smith and classical school, historical school, Austrian school, Alfred Marshall and neoclassicists.

***506. Modern Economic Thought (3-4)**

Contributions to economics of most significant writers since Alfred Marshall.

***507. Institutional Economics (4)**

Veblen, Commons, Ayres, and other modern dissenters from traditional economic thought. Technological progress and institutional adjustment; influence on contemporary theory and policy.

***515. Economic History of the United States (4-5)**

Economic development of United States. Growth of banking, manufacturing, labor unions, and agriculture, from colonial times to present.

***516. Rise of Industrial Society (4-5)**

Economic growth of "developed" countries; industrial revolutions in Great Britain, France, Germany, Soviet Union and Japan. Historical experience of these countries related to various theories of economic change.

***520. Economic Development (4)**

Nature of, obstacles to, and future possibilities for economic growth of nations. Problems of underdeveloped countries. Studies of selected countries utilized.

***521. African Economic Development (4)**

African societies as traditional economies and in process of modernization. Prereq: 520 or perm.

***522. The Chinese Economy (4-5)**

Introduction to Chinese economy. China's early industrialization, 1880-1931; socialist transformation of each economic sector, 1949-1967; overall performance of Chinese economy and each economic sector; and Maoist revision of orthodox Marxist-Leninist economic doctrines. Prereq: 520 or perm.

***523. The Economy of Latin America (4)**

Economies of Latin American countries. Prospects for economic development of the region. Nature and origin of institutional obstacles to economic change. Economic heritage of colo-

nial period and subsequent evolution of economic institutions, resources of the area and their utilization, and trends in economic activity and policy in post-World War II period. Prereq: 520 or perm.

***525. Comparative Economic Systems (4-5)**

Theoretical and institutional characteristics of capitalism and socialism with emphasis on prevailing economic systems in the United States, England, and Russia.

***526. Economics of the Soviet Union (4-5)**

Operation of Soviet Union economy. Allocation of resources; planning, saving, and investment; agriculture; public finance; price system; and international trade.

***528. Regional Analysis (4-5)**

Theories of regional and inter-regional relationships and policies for regional development. Consideration of economic, geographic, demographic, political, and social factors.

***529. Economics of Planning (3-4)**

Economics of planning and its major applications to private and public planning; national, regional, local, centralized, and decentralized planning. Procedures and techniques: organization, economic analysis, social accounting, input-output analysis, linear programming, location theory, industrial complex analysis; gravity, potential and spatial models, computers and planning; research and development.

***530. Introduction to Mathematical Economics (4-5)**

Mathematical analysis in economics. Calculus and matrix algebra techniques used prominently in economics literature, with application to selected problems in economics.

***532. Programming Models for the Firm (4-5)**

Linear, non-linear and dynamic programming as possible explanation of firm behavior. Social consequences of resource allocations under models discussed.

***535. Introduction to Econometrics (4-5)**

Application of statistics to economics, design and estimation of economic models, estimation of simultaneous equation systems. Prereq: 530 or perm.

536. Advanced Econometrics (4-5)

Problems of simultaneous equations: identification problems, indirect least squares, stage least squares, limited information methods,

full-information, and three stage least squares. Analysis of economic data such as multicollinearity, heteroscedasticity, lagged variables, and dummy variables. Projects involving econometric methods. Prereq: 535 or perm.

***541. Fiscal Policy (3-4)**

Roles played by government expenditures, taxes, and debt in maintaining full employment, price stability, and economic growth.

***542. Economic Fluctuations and Growth (4)**

Nature and causes of economic fluctuations, basic economic cycles, theories and their application in business. Advanced economic theory and stabilization policies and analysis of stability of equilibrium.

***551. Monetary Policy (3)**

Policy making machinery of monetary institutions, relationship of Federal Reserve System, Treasury Department, and commercial banking system, case studies in formulation and implementation of monetary policy, effectiveness of monetary policy actions. Prereq: perm.

***553. Monetary History of the United States (3)**

Correlation of developments in American history with development of monetary institutions, policy, and theory. Evolution of commercial and central banking and relationship to economic activity in history of United States. (Same as Fin. 553)

***560. Organization and Structure of Industry (5)**

Market structure, conduct, and performance in American industry; development of a theoretical framework for evaluation efficiency of industry; history and causes of merger activity; evaluation of characteristics of principal manufacturing and processing enterprises; and contribution of theory of industrial organization to macroeconomic and microeconomic theory.

***561. Economic Policy and Industrial Organization (5)**

Social consequences of monopoly and competition, policy prescriptions dealing with economic concentration and market structure. Impact on United States business, and government regulation of business.

***562. Government and Agriculture (4-5)**

American agriculture as an industry; economics of government policies and programs; consideration of forces and objectives in policy formation.

***563. Economics of Government (3-4)**

Role played by government as user of economic resources and redistributor of incomes: need for government's entry into economy, optimal size of government, selection of tax and expenditure schemes and effects of government economic activity on private sector. Prereq: perm.

***564. Economics of Defense (4-5)**

Government procurement, contracting and implementation of efficient allocation of resources. Economic approaches and analysis of military procurement problems in determining fiscal effects on economy. Methodology and utilization of business methods for greater insight on government defense budgeting. Emphasis on aircraft/aerospace industry.

***568. Economics of Transportation (3-4)**

Economics of transport pricing, regulation of transport and national transport policy.

***569. Public Utilities (3-4)**

Economic basis of public utility concept and its relation to business organization. Nature, scope, development, legal organization, and regulation of public utilities.

***570. Labor Economics (4)**

Economic forces generating modern labor problems: history of labor movement, labor in politics, labor-management relations, wages, full employment.

***571. Labor Legislation (4)**

Law bearing upon labor problems: labor-relations legislation, old-age and unemployment insurance, workmen's compensation, wages-and-hours legislation.

***575. Economics of Poverty (4)**

Incidence, causes, and consequences of poverty in affluent society. Economic theory, history, statistics applied to analysis of poverty-reduction measures. Prereq: perm.

***576. Economics of Human Resources (4)**

Current developments in theory, empirical research, and policy with respect to investment in human resources, economic value of education, manpower programs and growth.

***580. International Economics (4)**

Economic relations of nations of the world. Economic basis for international trade and investments, mechanics of international exchange; tariffs, quotas, exchange control, cartels, and state trading as devices of economic nationalism; and international economic cooperation with special reference to organizations affiliated with the United Nations.

***581. International Economic Policy (4)**

Current economic developments of foreign and United States economic policy, including tariffs, controlled trade, international agreements, commercial treaties, foreign exchange control, clearing agreements, international liquidity controversy, and contemporary balance of payments problems. Roles of institutions such as world bank and International Monetary Fund discussed with emphasis on interaction of domestic and international goals and policies. Prereq: 580

651. Seminar in Monetary Theory (4)

Relationship between money and its value; relations between money and level of economic activity; allocation of funds among alternate uses, and interest and level and behavior of interest rates. Prereq: perm. (See Fin. 655)

690. Studies in Economics (as recommended by dept.)

Readings and/or research in selected fields in economics under direction of a staff member. Topics selected by student in consultation with faculty member. Prereq: perm.

691. Research in Economics (as recommended by dept.)

Research in selected fields in economics under supervision of a staff member. Prereq: perm.

692. Seminar in Economics (as recommended by dept., max. credit, 16 hrs.)

Prereq: perm. Seminars in following general areas:

- a. Theory and Thought
- b. Growth and Development
- c. Monetary and Fiscal; Theory and Policy
- d. Labor and Human Resources

696. Master's Seminar (3)

Writing of scholarly papers in areas of economics. (*Required of all master's candidates in economics not writing a thesis*)

698. Thesis (as recommended by dept.)

ECONOMIC EDUCATION

†547. Economic Education Workshop (3-8)

Basic economic concepts and practical economic problems and their integration into the school curriculum. Prereq: perm. (Summer and extension only)

†Also listed by College of Education.

†549. Economic Education Programs (3)

Economic education in the schools. Administrative and organizational structures, current curriculum development projects, essential economic understandings that should be taught and their place in the curriculum, ways to improve economic education, and economic education organizations. *Warmke*

†550. Economic Education Research (3)

Current and requisite research in economic education, basic experimental design, evaluation of research problems and current curriculum development projects, translation of basic and applied research to viable curricula. *Warmke*

†551. Economic Education Seminar (3)

Study of conceptual framework of economic education through analyzing its philosophy, scope, structure, curricular sequence, and research. *Warmke*

690. Studies in Economic Education (as recommended by dept.)

Readings and/or research in selected fields of economic education under direction of a staff member. Topics selected by student in consultation with faculty member. Prereq: perm.

691. Research in Economic Education (as recommended by dept.)

Research in selected fields in economic education under supervision of a staff member. Prereq: perm.

696. Master's Seminar (3)

Writing of scholarly papers in areas of economic education. Required of all non-thesis masters' candidates in economic education.

698. Thesis (as recommended by dept.)

EDUCATION

Crowell (dean), Milliken (associate dean), Dressel (assistant dean), Nitzschke (assistant dean).

The College of Education offers graduate courses to help school workers raise their level of competence in their professional work. Programs are available leading to the M. Ed. and Ph. D. degrees. It is also possible in certain fields to plan a sixth year of study or professional competency program. Detailed descriptions of these various graduate programs may be secured from the College of Education.

The types of programs offered cover the following professional fields:

Business Administration in Education
Comparative Education

Counselor Education in Higher Education
 Curriculum and Supervision
 Educational Administration
 Personnel Administration
 Elementary Education
 Audio-Visual Education
 Special Education
 Guidance and Counseling in Elementary Education
 Guidance and Counseling in Secondary Education
 Secondary Education
 Student Personnel Services in Higher Education

In each of these fields, and to a limited extent in some other fields, the College of Education is prepared to advise students and to help them plan their graduate programs.

Master of Education

Students wishing to major in education may have a program of study arranged with a minimum of 40 hours of course work and Ed.RS 695-Thesis, or a program of study with a minimum of 45 hours of course work including Ed.RS 691-Seminar in Education.

Major and Minor Programs

The most common programs of preparation for graduate students seeking the Master of Education degree are described in the following sections. A student seeking certification in Ohio or another state for administrative, supervisory, or pupil personnel services positions should seek advice from his major adviser regarding requirements.

To provide a common basis in the field underlying all aspects of education, all majors are required to complete the following:

- History or philosophy of education (one course)
- Introduction to Graduate Study (Ed.RS 501)
- Thesis (Ed.RS 695) or Seminar in Education (Ed.RS 691)

Majors in Education

The College of Education staff has prepared programs of study in several areas of specialization. These are listed below with brief comments as to their several purposes. Detailed programs, including required courses and suggested electives, may be secured from the graduate committee in education or from the College of Education staff members specializing in the area of interest.

Professional Competence Programs

Students who hold the master's degree with appropriate professional background may pursue advanced work in professional competency programs. These consist of approximately 45 quarter hours of work planned to advance the student's competence to perform duties associated with certain types of educational positions. The sixth year of work is now offered in business administration in education, counselor education in higher education, curriculum and supervision, educational administration, elementary education, guidance and counseling in secondary education, guidance in elementary education, personnel administration in education, and student personnel services in higher education. Descriptions of these programs are available from the graduate committee in education or from the College of Education staff members specializing in the area of interest.

Doctoral Programs in Education

Advanced preparation which may lead to the Doctor of Philosophy degree is offered with majors in business administration in education, counselor education in higher education, curriculum and supervision, educational administration, elementary education, guidance and counseling in secondary education, guidance in elementary education, personnel administration in education, and student personnel services in higher education. Minors for the doctorate are available in these and other areas of education, and in other departments of the University.

Students admitted to do work beyond the master's degree are first admitted to pre-doctoral study in education. After the equivalent of two quarters of work, such students are expected to apply for admission to the division of advanced studies in education. This admission is based upon a review of the student's qualifications, successful completion of an advanced seminar, and upon the results of certain examinations. If admitted to advanced studies, the student is assisted by an advisory committee in developing the remainder of his program.

Details of the other requirements for the doctorate and detailed statements about doctoral programs in education may be secured from the graduate committee in education or from the College of Education staff member specializing in the area of interest.

EDUCATIONAL ADMINISTRATION

Krantz (acting chairman), Crowell, Evans, Hicks, Johnson, Ray, Roaden, Rodgers.

Programs leading to the M.Ed. degree,

the Professional Competence Certificate and to the Ph.D. degree are offered in the fields of:

Business Administration in Education
Educational Administration
Personnel Administration in Education

Opportunities for specialization are provided to meet individual needs and to prepare for specific responsibilities in school systems, colleges and universities, and state departments of education.

The Center for Educational Research and Services makes available the resources of the College of Education and Ohio University to educational workers and boards of education served by the University.

The resources of the Center for Educational Research and Service and the projects which it undertakes offer opportunities for graduate students to participate in field studies of real situations and problems.

The cooperative arrangements with other colleges of Ohio University make it possible for the student to pursue a wide range of interests and thus achieve a high degree of competence for a specific type of position.

For further information write to L. L. Krantz, Acting Chairman, Department of Educational Administration, College of Education, Ohio University, Athens, Ohio 45701.

Ed.AD 501. Introduction to Educational Administration (3)

Nature of educational administration—its purposes, tasks, situational factors, processes; qualifications for the job, personal assessment, preparations, in-service training, professional opportunity and challenge. *Rodgers*

Ed.AD 502. State and National Administration of Education (3)

State program of education, state responsibility, educational organization, certification and tenure, national problems in education. Prereq: 501 *Ray*

Ed.AD 503. Administration of Education in Other Countries (3)

Programs, organizational structure, and control of education in other countries. United States assistance to programs of education in developing countries. Prereq: 501 *Ray*

Ed.AD 511. Fundamentals of Law in Education (3)

Selected principles of constitutional, statutory, case and common law affecting schools and school personnel with special reference to Ohio school law. Prereq: 501 *Ray, Rodgers*

Ed.AD 521. Principles of Educational Finance (3)

Financial problems in education, sources of support, variations in financial ability and effort. Local, state, and federal financial planning. Prereq: 501 *Rodgers*

Ed.AD 531. Introduction to Personnel Administration in Education (3)

Philosophy of personnel administration, development of policies covering selection, classification, certification, welfare, staff negotiations, contracts, staff development, placement and assignment of teaching and non-teaching personnel in schools. Prereq: 501 *Krantz*

Ed.AD 541. Introduction to Planning Educational Facilities (3)

Principles, practices, and problems in administration of a building program; evaluation of existing facilities, surveying needs, planning educational programs, developing educational specifications, attaining efficiency and economy through design and construction, and equipping and occupying the plant. Prereq: 501 *Roaden*

Ed.AD 552. Problems in Administration of Education (1-3)

Intensive courses of one week or longer. Each course covers a phase of administration, such as business, personnel, facilities, etc. Credit to depend on length of course. Prereq: perm.

- a. Transportation
- b, c, d—to be developed

Ed.AD 561. Public Relations in Education (3)

Principles, program organization, agents, and media in effective school public relations. Students may develop materials for their own use. Prereq: 501, perm. *Lynn*

Ed.AD 571. Principles of Curriculum Organization and Development (3)

Foundations and principles of curriculum patterns and revision procedures at elementary, secondary, and college levels. Prereq: perm.

Ed.AD 576. Supervision of Instruction (3)

Principles underlying supervision as a process designed to improve teaching and learning activities. Prereq: perm.

Ed.AD 577, 578. Supervision of Science Instruction (3, 3)

Consideration of professional responsibilities, staff functions and experimental curriculum programs; evaluation of apparatus, equipment, audio-visual aids, textbooks, and library materials. Prereq: teaching experience and perm. *Ploutz*

Ed.AD 621. Local and State Financing of Education (3)

Financing of education with special emphasis on sources, collection and distribution of tax monies. Problems of assessment, taxation, and collection of local funds. State foundation and other programs for distribution of state monies. Prereq: 501' and 521 *Rodgers*

Ed.AD 622. Federal Financing of Educational Programs (3)

Developing proposals, contracting, operating and reporting federally financed programs in education. Prereq: 501 and 521

Ed.AD 634. Seminar in Personnel Administration (3)

Observation of teachers, job analysis, writing of job descriptions, review of credentials, interviewing of candidates, selection of staff members, placement and assignment. Prereq: 531, perm. *Krantz*

Ed.AD 641. Planning Educational Facilities (3)

For advanced graduate students in educational administration. Specific planning problems; special organization and conditioning; study of innovations in facilities; examining facilities; and discussion sessions with architects, engineers, and superintendents. Prereq: 501 and 541 *Roaden*

Ed.AD 690. Research in Educational Administration (2-6)

Individual research studies. Prereq: perm.

Ed.AD 711. Legal Aspects of Educational Administration (4)

Constitutional basis for education; schools and their legal setting, school legislation and court decisions. Prereq: 501' *Ray*

Ed.AD 724. Seminar in Educational Finance (4)

Individual research in problem areas of educational finance. Prereq: perm.

Ed.AD 731. Theory and Research in Personnel Administration (4)

Development of theoretical framework within which to handle research in personnel administration. Review of research studies in areas of organizational structure, staff procurement and utilization, staff development, and conditions of service. Prereq: 531, perm. *Krantz*

Ed.AD 734. Seminar in Personnel Administration (4)

Individual research in problem areas of personnel administration in education. Prereq: perm. *Krantz*

Ed.AD 744. Seminar in Planning Educational Facilities (4)

For advanced graduate students in educational administration. Individual research in problem areas of interest. Prereq: perm. *Roaden*

Ed.AD 751. Business Administration in Education (4)

Role of business administration in education: budget preparation and control, accounting, auditing, purchasing, debt service, legal aspects, operation and maintenance. Prereq: perm.

Ed.AD 754. Seminar in Business Administration in Education (4)

Case and field studies of problems in business administration of education. Prereq: perm.

Ed.AD 764. Seminar in Public Relations in Education (4)

New concepts and specific techniques in public relations in education, public involvement in community planning. Prereq: perm. *Lynn*

Ed.AD 781. Organization and Management in Educational Administration (4)

Principles and processes in educational administration, administrative organization and relationships, authority and responsibility. Prereq: perm.

Ed.AD 782. Theory and Practice in Educational Administration (4)

Cases and concepts in educational administration, administrative theory and its practical application. Prereq: perm.

Ed.AD 784. Seminar in Survey Techniques (4)

Techniques and practice in study of organization, administration, operation, and long-range planning for educational enterprises—school systems, intermediate districts, vocational programs and institutions of higher education. Prereq: perm.

Ed.AD 790. Research in Educational Administration (1-15)

Individual research studies. Prereq: perm. of adviser.

ELEMENTARY EDUCATION

Shuster (chairman), Cicirelli, Cooper, D'Augustine, Hake, Leep, Mills, Moffet, Oates, Peterson, Ploghoft, Ploutz, Tracy, Weimer, Yarrington.

The Master of Education degree is offered in elementary education, elementary administration, and elementary curriculum and

supervision. A minimum of nine quarter hours is required outside the College of Education in a related area.

The professional competency certificate, or sixth-year program, is combined with the successful completion of the Master of Education degree in one of the above-mentioned areas and a minimum of 45 quarter hours of advanced graduate study. Teachers, supervisors, and administrators are given the opportunity to broaden their understanding of school functions, particularly in curriculum and the learning processes. In addition, students may specialize in specific areas of the curriculum such as reading, mathematics, social science, science, and human development. A minimum of nine quarter hours outside the College of Education in a related area is required.

The Ph.D. program in elementary education continues the general broadening of the professional preparation for elementary teachers, supervisors, and administrators. The Ph.D. in elementary education is designed to prepare experienced classroom teachers for positions in teacher education or in administrative-supervisory capacities in the public schools. The program is flexible to permit a high degree of specialization in one of the basic curriculum areas such as social studies, reading and language arts, mathematics, or science. A minor in a related discipline outside the College of Education must be completed as a requirement for this degree.

For further information write to Albert H. Shuster, Chairman, Department of Elementary and Special Education, College of Education, Ohio University, Athens, Ohio 45701.

***Ed.EL 500. Advanced Studies of Children (3)**

Intensive study of basic research in child development from conception to maturity and resultant implications for educational practices. Prereq: 20 hours of education or psychology. *Cicirelli*

***Ed.EL 510. Programs and Problems in Teaching of Reading in the Elementary School (3)**

Current programs, materials, and practices in reading instruction; developmental concept, emphasizing optimum realization of pupil potential and utilization of reading in total school curriculum. *Cooper, Yarrington*

***Ed.EL 511. Diagnosis and Treatment of Reading Disabilities (3)**

Correlates of variability in reading proficiency. Incidence of retardation and disability. Proposed causes of failure and concept of multiple causation. Specialized materials and

instructional efforts. Systematic observation of cases of reading disability and preparation of case report. Prereq: perm. *Cooper, Yarrington*

***Ed.EL 520. Programs and Problems in Teaching of Oral and Written Communication in the Elementary School (3)**

Current programs, materials, and instructional practices in language-arts curriculum. Treatment of both impression and expression aspects of oral communication and of several aspects of written communication. Identification and individual investigation of problem areas.

***Ed.EL 521. Critique in Children's Literature (3)**

Seminar in critical analysis of research and theory related to children's literature. Opportunity to study individual problems. Prereq: perm.

***Ed.EL 530. Problems and Practices in Modern Elementary Mathematics—Practicum (3)**

Modern elementary mathematics curriculum with emphasis on why changes are occurring. Nature of changes as reflected from experimental programs; effect of changes on methods of teaching. Implementation of these changes in the classroom. *D'Augustine*

***Ed.EL 540. New Programs and Practices in Elementary Science (3)**

New programs and trends in science teaching are identified and evaluated. Philosophy, content, and grade level placement of topics in federal, foundations and privately sponsored experimental programs in elementary science will be identified. Practice in using materials proposed by these various groups. Prereq: teaching experience and perm. of instructor. *Mills, Ploutz*

Ed.EL 541. New Topics in Science and Science Education for Elementary School Teachers (3)

Modern advances in science, such as space science, atomic energy, electronics and biochemistry, etc., studied to determine suitable content, apparatus and grade placement for presentation in elementary schools. Development and use of curriculum guides, modern units, outdoor education, science fairs, field trips, programmed materials, and similar methods of advancing science education required. Prereq: teaching experience and perm. *Mills, Ploutz*

***Ed.EL 550. Programs and Practices in Elementary Social Studies—Practicum (3)**

Trends in modern social studies curriculum. Prereq: perm. *Leep, Moffet*

***Ed.EL 560. Elementary School Curriculum (3)**

Curriculum as a basic educational concern; issues involved in selections and organizing content; systematic study of curriculum development in the elementary school. Prereq: perm. *Ploghoft*

Ed.EL 561. Administration of the Elementary School (3)

Responsibilities of teachers and principals in administration, curriculum construction, supervision, plant management, and public relations. Prereq: 6 hours, including Ed.AD 501. *Shuster*

Ed.EL 562. Elementary School Supervision (3)

Leadership skills, principles, practices, and programs which lead to improved education and teacher growth in the elementary school. Prereq: 560. *Ploghoft*

Ed.EL 600. Readings and Research in Human Development (3-5)

Interpretation of scientific literature on human development as related to classroom experience in preschool through adolescence. Independent projects and solving selected educational problems. Prereq: perm. *Cicirelli*

Ed.EL 610. Reading Laboratory Practicum (3-9)

Application of developmental approach to problem cases in reading instruction—participation in diagnostic examination, parent and teacher conferences, individual procedures in tutoring, staffing of classes, and preparation of reports; weekly group discussion period, laboratory sessions arranged. Prereq: perm. *Cooper, Yarrington*

Ed.EL 690. Research in Elementary Education (2-6)

Individual study, under direction of a faculty member, of a basic research problem, culminating in a written report.

Ed.EL 710. Research and Curriculum in Elementary Education—Reading (5)

Critical evaluation of literature and recent research on objectives, content, and methodology. History of instruction, current problems and issues, recent trends and emphasis in teaching practices. Impact of dominant theories of learning and philosophies of education. Research design and methodology in scientific investigations. Prereq: perm. *Cooper*

Ed.EL 720. Research and Curriculum in Elementary Education—Oral Communication and Writing (5)

Critical evaluation of literature and recent research on objectives, content, and methodology. History of instruction, current problems and issues, recent trends and emphasis in teaching practices. Impact of dominant theories of learning and philosophies of education. Research design and methodology in scientific investigations. Prereq: perm. *Cooper*

Ed.EL 730. Curriculum in Elementary Education—Mathematics (4)

Critical evaluation of literature and recent research on objectives, content, and methodology. History of instruction, current problems and issues, recent trends and emphasis in teaching practices. Impact of dominant theories of learning and philosophies of education. Prereq: perm. *D'Augustine*

Ed.EL 731. Research in Elementary Education—Mathematics (4)

Research design and methodology in scientific investigations. *D'Augustine*

Ed.EL 740. Curriculum in Elementary Science Education (4)

History of science instruction, curriculum problems, issues, recent trends and emphasis in teaching practices. Impact of dominant theories of learning and philosophies of education on current curriculum changes in elementary school science. Critical review of existing conventional problems used as a background for examining experimental programs. Particular emphasis placed on historical development of science education from dominance of nature study and esthetics to modern experimental program. Prereq: prior teaching experience or perm. *Mills, Ploutz*

Ed.EL 741. Research in Elementary Education—Science (4)

Critical evaluation of recent research on objectives, content and methodology in science education. Research design and methodology of these investigations studied in detail. Review of microfilm research studies and abstracts made to identify areas and problems requiring further research. Prereq: 541 or 740, perm. *Mills, Ploutz*

Ed.EL 750. Curriculum in Elementary Social Studies (4)

Students critically evaluate literature and recent research on objectives, content, and methodology, survey history of instruction, current problems and issues, recent trends and emphasis in teaching practices and determine implications of these to development of social

studies curriculum for elementary schools.
Prereq: perm. *Leep*

Ed.EL 751. Research in Elementary Social Studies (4)

Student surveys selected current research pertaining to social studies in elementary school, surveys statistical methods utilized in this research and prepares an individual or group research project. Prereq: perm. *Leep*

Ed.EL 760. Seminar in Elementary Curriculum (4)

Critical study of research findings in curriculum area; issues, problems, and theories. *Ploghoft, Shuster*

Ed.EL 790. Research in Elementary Education (2-12)

Prereq: admission to advanced standing.

Special Education

***Ed.SP 570. Curriculum and Program Development for Mentally Retarded Children and Youth (3-12)**

Development of skill in systematic use of various teaching techniques including utilization of information regarding deviant patterns of child development, as well as translation of learning theory and research results to educational methodology and program development for mentally retarded children and youth. Prereq: perm.

***Ed.SP 571. Problems in Education of Mentally Retarded Children and Youth (2-9)**

Critical evaluation of selected current problems confronting teacher, consultant, specialist, or administrator concerned with education of mentally retarded children and youth. Prereq: perm.

***Ed.SP 572. Diagnostic and Clinical Education of Handicapped Children and Youth (4)**

Formal and informal methods of assessment, screening, and classification; collection and appropriate application of clinical data; and formulation of prescriptive educational plans for handicapped children and youth utilizing laboratory experience and multi-disciplinary consultations. Prereq: perm. *Peterson*

***Ed.SP 573. Education of the Multi-Handicapped (4)**

Etiology, diagnosis, classification, learning potentials, and general characteristics of multiple handicapped children with emphasis on curriculum design and administrative organization. Prereq: perm. *Peterson*

***Ed.SP 574. Diagnosis and Remediation of Specific Learning Disabilities (4)**

Techniques of assessing cerebral and perceptual dysfunctions and resultant cognitive and behavioral disorders with emphasis on neurophysiological bases of sensory motor teaching approach to remediation. Prereq: perm. *Peterson*

Ed.SP 575. Education of the Neurologically Impaired (3)

Etiology, diagnosis, classification, learning potential, organization of curriculum, and teaching methodology for the neurologically impaired, including brain damaged, cerebral palsied, and hyperactive children. Prereq: perm. *Peterson*

Ed.SP 576. Administration and Organization of Special Education (4)

Historical perspective, diagnostic procedures, legislative provisions, research implications, community and professional resources and general organization and management of special education programs. Prereq: perm. *Peterson*

Audio-Visual

***Ed.AV 581. Preparation of Audio-Visual Materials (4)**

Practice in creation and evaluation of instructional materials such as 2x2 slides, overhead transparencies, recordings and other audio-visual materials. Individual projects to meet student needs. Prereq: perm. *Oates*

Ed.AV 582. Organization and Administration of Audio-Visual Programs (4)

Practices involved in operation of an audio-visual program. *Oates*

Ed.AV 583. Audio-Visual Research, Theory, and Field Work (4)

Research, literature and organization of the audio-visual field, including field experience. Prereq: 581, 582. *Oates*

Ed.AV 584. Communication and Learning Theory Applied to Audio-Visual (4)

Practical relationships between psychological theory demonstrated through audio-visual materials and techniques. *Oates*

Ed.AV 589. Practicum in Audio-Visual (3-9)

Practicum experiences for advanced audio-visual students in working in an audio-visual center. Prereq: perm. *Oates*

GUIDANCE, COUNSELING, AND STUDENT PERSONNEL

Hummel (chairman), Carew, Dressel, Forsyth, Green, Griffis, Grubb, Haseley, Hedquist, Hill, Nitzschke, Ostlund, Peterson, L. M. Rand, L. P. Rand, Trembley, Witmer.

Programs are offered leading to the M.Ed. and Ph.D. degrees in elementary school guidance and counseling, secondary school guidance and counseling, and student personnel services in higher education. The Ph.D. is offered in counselor education in higher education. Professional preparation in these programs is designed for persons planning to pursue careers in several special areas in pupil and student personnel work, including elementary school counselor, counselor in junior and senior high schools, college counselor, student personnel administrator, and counselor in settings requiring a similar educational background.

Applicants are required to submit scores on the Graduate Record Examination. Personal interviews are also a factor in the selection procedure. Courses of study balance theoretical foundations with applied experience. Sixth-year professional competence programs are offered as a part of a two-year counselor-education program and for those wishing to qualify for professional certification and for administrative and supervisory positions in guidance and pupil personnel work.

For further information write to Dean L. Hummel, Chairman, Department of Guidance, Counseling and Student Personnel, College of Education, Ohio University, Athens, Ohio 45701.

*Ed.GS 520. Elementary School Guidance (3)

Rationale, scope, and nature of elementary school guidance; multiple approaches to provision of guidance services in elementary school with emphasis upon role of elementary school counselors. Prereq: perm. *Grubb*

Ed.GS 521. Elementary School Counseling: Theory and Techniques (3)

Counseling theories and techniques as they relate to counseling with the elementary school child. Attention given to practical application and evaluation of activities, materials, procedures, and techniques used to facilitate communication and counseling process between the elementary school child and the elementary school counselor. Prereq: 520 *Grubb, Witmer*

Ed.GS 522. Vocational Development of Children and Youth (3)

Vocational development of pupils in elemen-

tary and secondary school settings; ways school guidance services may facilitate vocational development of the individual. Prereq: 520 or 530

*Ed.GS 530. Foundations of Guidance (3)

Philosophy and principles underlying guidance, need for guidance in schools, and consideration of major guidance services. Prereq: perm. *Green*

Ed.GS 531. Student Appraisal I (3)

Nature and range of human characteristics and non-standardized devices and methods for measuring them. Prereq: 520, 530, 540, or perm.

Ed.GS 532. Student Appraisal II (3)

Use and interpretation of standardized test results in guidance and counseling, development and evaluation of school testing programs and general synthesis of appraisal data. Prereq: 531

Ed.GS 533. Guidance in Junior High Schools (3)

Consideration of essential guidance services as they apply to junior high school population in facilitating educational process at that level. Nature of the junior high student. Study and application of principles of guidance to special problems of this group. Prereq: perm.

Ed.GS 534. Dynamics of the Adolescent (3)

Extent and nature of individual differences as they apply to the adolescent. Examination of the culture in which they live. Study of adolescent behavior in the educational setting. Prereq: 520, 530, or 540

Ed.GS 535. Guidance of the Exceptional (3)

Comprehensive treatment of characteristics of exceptional youth in schools, their identification, their special problems, utilization of their abilities through guidance and counseling. Prereq: perm.

Ed.GS 536. Guidance and Behavioral Aspects of Disadvantaged (3)

Educational and personal characteristics of disadvantaged youth. Socio-economic and psychological determinants of their behavior. Aspects of guidance and counseling in dealing with their needs. Prereq: perm.

Ed.GS 537. Information Services in Guidance and Student Personnel (3)

Collection, evaluation, classification, and use of occupational, educational, and related information in guidance and student personnel programs. Prereq: 520, 530, or 540 and 531 *Hill*

Ed.GS 540. College Student Personnel as a Profession (3)

Foundations of student personnel work as a profession. Familiarization with history, philosophy, purposes, problems, issues and professional ethics and standards. Prereq: perm. *Carew, Rand*

Ed.GS 541. College Student Environmental Forces (3)

Study of characteristics of college students. Implications for goals of higher education and student personnel. Impact of college on student characteristics and influences which seem especially potent. Prereq: 540 or perm.

Ed.GS 542. Administration and Decision Making in Student Personnel (3)

Theory and practices of organization and financial management of a comprehensive student affairs program. Selection and in-service training of staff members. Communication and relationships with total college or university community. Procedures for effective coordination of a student affairs program. Prereq: 540

Ed.GS 550. Guidance and Counseling in Groups (3)

Exploration of roles of group guidance and group counseling procedures in meeting individual student needs in the educational setting. Opportunity provided for each individual to participate in a group counseling situation. Prereq: 520, 530, or 540 *Grubb, Trembley*

Ed.GS 551. Group Dynamics, Theory and Research (3)

History, theory, and techniques of group dynamics. Practical application of research concerning small group behavior; structure, process, product, and leadership. Demonstration and participation by students. Prereq: perm. *Carew, Ostlund*

Ed.GS 560. Counseling in Schools and Colleges: Theory (5)

Study of philosophy, theory, and practice appropriate to counseling in education. Problems of choice in matters of personal, social, education, and vocational planning. Ethics and professional role. Prereq: 520, 530, or 540 and perm. *Hummel, Trembley*

Ed.GS 570. Administrative Relations in Guidance and Pupil Personnel Services (3)

Organization, administration, and standards for guidance and pupil personnel services in schools. Referral, community relations, and resources. Legal bases of these services. Prereq: 520, 530, or 540 and perm. *Hill, Hummel*

Ed.GS 580. Guidance and Counseling in International Dimensions (3)

Guidance and counseling as practiced in other countries in relationship to educational, historical, and cultural context. Adjustment problems of international students and information about international agencies. Prereq: perm. *Ostlund*

Ed.GS 600. Guidance and Counseling Practicum (3-9)

- a. Elementary School
- b. Secondary School
- c. College and University

Supervised practice in counseling and other guidance and student personnel services. Prereq: 521 or 560 and perm.

Ed.GS 601. Practicum in Student Personnel Services (3-3)

Practice in working under supervision in residence halls, fraternities, sororities, environmental health, off-campus housings, student government, student organizations, offices of personnel deans, etc. Prereq: perm.

Ed.GS 610. Field Experience in Guidance, Counseling, and Student Personnel Services (1-9)

- a. Elementary School
- b. Secondary School
- c. College and University

Supervised field work in educational setting selected with regard to professional needs and interests of the individual student. Required activities include staff visits, on-campus conferences, and critical progress reports. Prereq: perm.

Ed.GS 620. Seminar in Guidance, Counseling, and Student Personnel Services (1-9)

- a. Elementary School
- b. Secondary School
- c. College and University

Need, value, philosophy, programs, and services of guidance, counseling, and student personnel work in schools and colleges. Prereq: perm.

Ed.GS 621. Readings and Research in Guidance, Counseling, and Student Personnel (3)

Study and interpretation of scientific literature on pupil and student personnel services in educational and related settings. Independent and directed projects. Prereq: perm.

Ed.GS 652. Laboratory in Applied Group Dynamics (5)

T-groups and other group experiences as basis

for studying problems and processes in group growth and development. Prereq: 551 and perm. *Carew*

Ed.GS 700. Advanced Practicum in Counseling (5-15)

- a. Elementary School
- b. Secondary School
- c. College and University

Supervised counseling practicum for advanced graduate students in guidance and student personnel (and counselor education). Integration of counseling theory and practice. Prereq: perm.

Ed.GS 720. Advanced Seminar in Guidance, Counseling, and Student Personnel (2-15)

- a. Elementary School
- b. Secondary School
- c. College and University

Doctoral level seminar providing for in-depth study of services included in the guidance and student personnel profession. Prereq: perm.

Ed.GS 750. Practicum in Group Counseling (3)

Skill development and practical application of group counseling theory in a supervised practicum setting. Prereq: perm.

Ed.GS 760. Supervision in Counselor Education (3-3)

Counselor education and administration of counseling services, theories of supervision, dimensions of supervisory relationships, increasing staff capabilities, in-service training programs, and national standards for counselor preparation. Prereq: perm.

Ed.GS 761. Seminar in Supervision of Guidance and Pupil Personnel Services (5)

Recruitment, supervisory-consultative, promotional, in-service training, research, management, reporting, evaluative, leadership, and regulatory functions in supervision and direction of guidance and pupil personnel programs at local, district, and state levels. Prereq: perm.

Ed.GS 762. Legal and Ethical Aspects of Guidance, Counseling, and Student Personnel (3)

Federal, state and local statutes dealing with personnel work. Court decisions and interpretation of related cases; pending legislation. Ethical considerations in counseling and guidance. Prereq: perm.

Ed.GS 763. Advanced Practicum in Specially Oriented Personnel Services (5)

Doctoral level practicum seminar intended to provide in-depth experience in selected services, student personnel programs in a technical school, community and branch college, or university setting. Prereq: perm.

HIGHER EDUCATION

Ed.HE 590. Higher Education (3)

Background and growth of higher education in the United States. Present status of various types of institutions will be studied. Prereq: perm.

Ed.HE 591. Community Colleges and Branch Campuses (3)

Special problems related to administration of community and junior colleges, branch campuses, vocational and technical colleges and adult education programs. Prereq: perm.

Ed.HE 592. Teacher Education (3)

Teacher education in the United States, its history, current status, and current issues. For persons planning to teach in colleges and universities which prepare teachers for the schools. Prereq: perm.

Ed.HE 690. Seminar: Current Issues in Higher Education (1-9)

On going, up-to-date treatment of significant current developments in higher education. Prereq: perm.

Ed.HE 780. Dynamics of College Teaching (5)

Psycho-educational problems in undergraduate and graduate teaching with special emphasis upon individual differences, principles of learning, technology of teaching and learning, curriculum development, adjustment problems of college students, counseling and advisory services, test construction, analyses and use of test results. Prereq: perm.

Ed.HE 781. Directed Experiences in College Instruction (5)

Individualized program under guidance of an instructor or department which would include field study and experience in college teaching. Prereq: perm.

Ed.HE 782. Curriculum Development in Higher Education (3)

Critical study of factors and issues involved in curriculum development. Types of curricula and underlying philosophies. Curriculum research and evaluation in higher education. Prereq: perm.

Ed.HE 783. Institutional Research and Self-Study in Higher Education (3)

Problems of the institutional research office including institutional need and methods of data collection and reporting. Institutional self-study as it relates to accreditation. Prereq: perm.

Ed.HE 784. Practicum in Higher Education Administration (3)

Practice in working under supervision in special administrative offices in the university including offices of the president, vice-presidents, academic deans, business offices, etc. Prereq: perm.

Ed.HE 785. Administration in Higher Education I: Control and Support (3)

Development of an understanding of controlling factors in higher education. Study of the financial base of higher education and its effect upon an institution's operation. Prereq: perm.

Ed.HE 786. Administration in Higher Education II: Structure and Organization (3)

Depth study of internal organizational patterns and structure of a variety of institutions of higher learning. Policy perspectives in higher education. Prereq: perm.

COLLEGE AND UNIVERSITY STUDENT PERSONNEL WORK

The master's degree is minimum preparation for such work. The doctorate is necessary for the more responsible positions. As an undergraduate the student interested in this field should develop considerable breadth in the social sciences, concentrating in the behavioral sciences. Undergraduate work in education, psychology, and sociology are especially desirable. A good background in the study of educational institutions and their role in modern societies is essential.

INSTITUTE OF INTERNATIONAL EDUCATION

Milliken (director), Hasely, Samaan, Stephenson.

The Institute of International Education is designed to utilize the efforts of the faculty of the College of Education in a meaningful program as well as to integrate its service projects into the academic program. Its purpose is to make teachers more proficient in teaching about the world, provide trained professionals to serve the American education sector abroad, prepare individuals for posi-

tions in the United States which demand a workable knowledge of the world's educational systems, and to serve as a study and research resource for American and foreign teachers and administrators.

The offerings of the Institute include courses in educational systems of the world; problems of educational development in Africa, Asia, South America, and the United States; current organized assistance programs in international education; individual studies and seminars in comparative education; internships in internationally oriented educational undertakings; and comparative, historical and philosophical understandings of education in the world.

Ed.IC 520. Survey of Educational Systems of the World (3)

Educational systems of the world including European, Russian, and Oriental schools.

Ed.IC 525. Problems of Educational Development (3-9)

Origins of modern education on the continents where the emerging nations are found. History, predominant socio-cultural operants, economic and political factors which bear upon educational development of emerging nations considered. For each continent, one nation studied in some detail. Prereq: 520 or perm.

- a. Africa
- b. Asia
- c. South America

Ed.IC 530. Programs in International Education (5)

Assistance programs to education in developing nations; foundation programs, UNESCO programs, A.I.D. programs. Assistance programs of other nations. Objectives, structures, funding, organization and plans for implementation. Prereq: perm. *Ray*

Ed.IC 620. Individual Studies in Comparative Education (3-6)

Individual studies in comparative education in an area of national development. Prereq: perm.

Ed.IC 625. Seminar in Comparative Education (3)

Introductory seminar providing opportunity to identifying areas of interest and concern, to exchange ideas and views with others (including students from abroad), and to develop a rationale for study of educational system and developments in other societies. Affords foreign students a technique for viewing American education and a means for American students to look abroad. Prereq: perm.

Ed.IC 725. Advanced Seminar in Comparative Education (5)

Emphasis upon interdisciplinary treatment of problems and concerns. Contemporary situations investigated in relation to dominant factors in the economic, cultural, and political environment. Techniques for comparative study of educational systems and developments. Prereq: perm.

Ed.IC 730. Internship in Comparative Education—United States or Abroad (10-15)

Internship in the U.S. or abroad; a one year assignment with a stateside operation (such as aid or assisting in the comparative education program) or an assignment abroad. Interns required to have had experience in teaching in the United States. Prereq: perm.

PROFESSIONAL LABORATORY EXPERIENCES

Evans (director).

Professional laboratory experiences for graduate students are designed for the individual student by the director in conference with the student's graduate adviser. The experience is planned as a meaningful extension of the student's prior experience as a teacher, counselor or administrator. In general, undergraduate student teaching is a prerequisite for all graduate level laboratory experiences.

Ed.PL 560, 561. Internship in Education (3-9, 3-9)

Internship in school administration, supervision of instruction, or classroom teaching for a minimum of one quarter, full-time. Following brief period of orientation to school and community, student assumes increasing responsibility under direct supervision of a staff member of school system. Student is expected to function as a classroom teacher with regular supervision, as a team member in a team-teaching situation, or as an assistant to an administrator or supervisor. Weekly seminar conducted by college staff and public school associates. Gen. prereq: 9 quarter hrs. graduate work in education and perm. of graduate adviser and director of student teaching. Prereq. for interns in administration and supervision: teaching experience, teaching certificate. *Evans*

Ed.PL 570. Supervision of Student Teaching (3-9)

Principles and techniques in supervision of student teaching and other professional laboratory experiences. Designed primarily to prepare public school teachers and college instructors for more effective supervision.

Prereq: teaching certificate, teaching experience, perm. *Evans*

Ed.PL 690. Professional Laboratory Studies (3-9)

Special studies based upon direct experience in supervision of student teachers in campus or public school laboratories. Prereq: perm. *Evans*

Ed.PL 790. Professional Laboratory Studies (3-9)

Special studies based upon direct experience in supervision of student teachers in campus or public school laboratories. Prereq: perm. *Evans*

RESEARCH AND SCIENTIFIC TECHNIQUES

Nitzschke (director), Hales, Harrington, Sligo, Tracy.

In addition to the courses provided in this area the research staff provides consultative service to both faculty and graduate students in the areas of research design, statistics, educational measurement and computer utilization. Laboratory facilities including calculating machines, card punch and a library of statistical computer programs are made available. Guidelines for establishing proficiency in these areas, as well as guidelines for the use of this equipment, may be obtained from the student's adviser.

Ed.RS 501. Introduction to Graduate Study (3)

History and purposes of graduate education. Methods of research in education. Selection, planning, and evaluation of research problems. (*Required of all graduate students in education.*) *Krantz*

Ed.RS 511. Techniques of Test Development (3)

Construction of evaluation instruments for research and classroom use, item analysis, techniques, tryout, revision, and validation of tests. *Tracy*

Ed.RS 512. Educational Measurements (3)

Application of measurement theory to selection and use of standardized tests. Reliability, validity, practicality, standard scores, development of testing programs, and problems of selection and assignment. *Tracy*

Ed.RS 521. Educational Statistics I (4)

Tabulation and graphical representation of frequency tables, measures of central tendency, percentiles and percentile curves, measures of variability, standard scores, normal curve,

introduction to sampling theory (large and small samples), testing statistical hypotheses, t-distribution, and correlation. *Sligo*

Ed.RS 522. Educational Statistics II (4)

Chi-square, linear regression, and nonlinear relations, partial correlation, multiple correlation and regression, various methods of correlation, sampling distributions, confidence intervals, simple analysis of variance and covariance. Practice in use of desk calculator and other statistical aids. Prereq: 521. *Sligo*

Ed.RS 631. Computer Science Applications in Education (3)

Application of data processing and computer science techniques to problems in education. Prereq: 521 and 522, or perm. *Harrington*

Ed.RS 691. Seminar in Education (3)

Advanced studies of special problems in elementary education, guidance, secondary education, and school administration. Prereq: 35 hrs. or perm.

Ed.RS 695. Thesis (as recommended by dept.)

Prereq: perm.

Ed.RS 701. Research Design in Education (4)

Critical evaluation and development of research studies. Emphasis on development of problems which admit to scientific investigation, statement of hypotheses, definition of terms, problems of sampling, statistical methods, and interpretation and generalization of findings. Prereq: perm. *Tracy*

Ed.RS 712. Research in Educational Measurement (4)

Measurement and scaling theory. Research in selected measurement topics. Prereq: 512 and 522.

Ed.RS 720. Introduction to Statistical Methods (5)

Intensive basic statistics for students with a master's degree. Descriptive and inferential statistics, linear and nonlinear correlation, various correlation methods. Not open to those having taken 521 and 522. Prereq: perm. *Sligo*

Ed.RS 721. Advanced Educational Statistics I (4)

One-way, two-way and higher dimensional designs, analysis of covariance with variety of experimental designs. Multivariate analysis of variance and covariance, discriminant functions, canonical correlation, and multiple discriminant functions. Prereq: 521 or 720. *Sligo*

Ed.RS 722. Advanced Educational Statistics II (4)

Various non-parametric statistics used in educational research. Sign test, Kolmogorov-Smirnov tests, tests for runs, signed rank test, median test, various tests for comparison of K samples, confidence intervals in non-parametric statistics, and tests of independence. Prereq: 721. *Sligo*

Ed.RS 723. Research in Educational Statistics (1-6)

Interpretation of research studies from a statistical viewpoint. Emphasis on examination of research designs that involve statistics. Efficient methods of computation. Prereq: 722. *Sligo*

Ed.RS 791. Advanced Seminar in Education I (3)

Review of current literature and research in education. Preparation of research proposal. Prereq: perm.

Ed.RS 792. Advanced Seminar in Education II (3)

Search of literature, gathering and processing of data required in research proposal prepared in 791. Prereq: perm.

Ed.RS 793. Advanced Seminar in Education III (3)

Completion of research proposed in 791 and preparation of formal report. Prereq: perm.

Ed.RS. 895. Dissertation (as recommended by dept.)

Prereq: perm.

SECONDARY EDUCATION

Boyd (chairman), Dumond, Graham, Johnson, Leighty, Lynn, Pietras, Roberts, Shoemaker, Skinner, Sligo, Thompson, Trent, Wagoner.

The Department of Secondary Education offers programs leading to the Master of Education degree in the following distinct areas of specialization: (1) secondary education, designed to help teachers improve their teaching; (2) secondary administration, developed to prepare high school principals; and (3) secondary curriculum and supervision, designed to prepare high school supervisors.

The professional competency certificate, or sixth-year program, is based upon the successful completion of the Master of Education degree in secondary administration or secondary curriculum and supervision and consists of a minimum of an additional 45 quarter hours of advanced graduate study.

The master's and the competency programs include 9 to 12 hours each in a related area outside the College of Education.

Ph.D. programs are offered in secondary school administration and in secondary school curriculum and supervision. These doctoral programs are designed to prepare the student for administrative and supervisory positions in school systems.

Students seeking admission to pre-doctoral programs in secondary administration or secondary supervision must have several years of successful full-time experience as teachers and/or administrators.

For further information write to Robert M. Boyd, Chairman, Department of Secondary Education, Ohio University, Athens, Ohio 45701.

Ed.SE 541. High School Curriculum (3)

Curriculum patterns and theories of construction, curriculum reorganization, and general curriculum research. Prereq: Ed.AD 571
Roberts

Ed.SE 542. Junior High-Middle School Curriculum (3)

Concentrates specifically on early adolescent age and is structured to provide special emphasis on unique concepts and purposes of junior-middle school curriculum and its role in providing articulation between elementary and senior high school. Prereq: Ed.AD 571
Johnson

Ed.SE 543. Teaching of Reading in Junior and Senior High School (3)

Materials, methods, and developmental patterns of the adolescent within area of reading. Remedial programs and adaptation of materials to the adolescent. Prereq: perm.
Pietras

Ed.SE 544. Programs and Practices in Student Activities (3)

Comprehensive treatment of school-recognized activities in the extracurricular program. Open to elementary, junior and senior high school teachers and administrators. Prereq: perm.
Lynn

Ed.SE 546. Post High School Adult Education—Curriculum and Practices (3)

Curriculum development in adult education; values and problems. Programs offered by various school systems. Prereq: perm.
Lynn

Ed.SE 547. Workshop in Economic Education (3-5)

Basic economic concepts and practical economic problems; their integration into school curriculum. Prereq: perm.
Warmke

Ed.SE 548. Conservation Education Workshop (6)

Field course designed primarily for elementary and junior high school teachers. Relationships between conservation and natural sciences. Prereq: approval of adviser. (Summer only)
Sturgeon

Ed.SE 549. Economic Education Research (3)

Economic education in the schools. Administrative and organizational structures; current curriculum development projects. Essential economic understandings that should be taught and their place in the curriculum. Ways to improve economic education; economic education organizations. Prereq: perm.
Warmke

Ed.SE 550. Economic Education Research (3)

Current and requisite research in economic education; basic experimental design; evaluation of research problems and current curriculum development projects. Translation of basic and applied research to viable curricula. Prereq: 549
Warmke

Ed.SE 551. Economic Education Seminar (3)

Conceptual framework of economic education, analyzing its philosophy, scope, structure, curricular sequence, and research. Prereq: 550 or perm.
Warmke

Ed.SE 555. Advanced Principles of Teaching (3)

Critical appraisal of research in areas of learning and teaching. Prereq: perm.
Roberts

Ed.SE 560. High School Administration (3)

Current administrative principles and practices essential to effective organization and management of the secondary school. Emphasis on leadership role of principal. Prereq: 9 hrs. incl. Ed.AD 501
Lynn

Ed.SE 561. Junior High-Middle School Administration (3)

Designed for persons aspiring to become administrators of the junior high-middle school. Nature of the adolescent, problems of administration, operational task of junior high-middle school. Independent research projects centered on administration. Prereq: 9 hrs. incl. Ed.AD 501
Johnson

Ed.SE 563. Secondary School Supervision (3)

Principles underlying supervision. Techniques which promote growth of secondary school teachers in service. Laboratory experience in analysis of secondary school teaching situation. Prereq: Ed.AD 576
Boyd

Ed.SE 640. Evaluation of Secondary Schools (3)

Procedures, rationale, and problems relating to evaluation of secondary schools through use of surveys or instruments such as Evaluative Criteria. *Lynn*

Ed.SE 690. Research in Secondary Education (2-6)

Review and conduct of research on secondary school problem as individual project or as part of larger study. Prereq: perm. *Boyd*

Ed.SE 740. Curriculum Theory in Secondary Education (5)

Major curriculum models and their underlying theory. Critical reading and interpretation of research conducted in secondary school curriculum. Applications of theory and research in new models. *Boyd*

Ed.SE 741. Problems in High School Administration and Supervision (5)

Critical appraisal of major problems and issues in secondary school administration and supervision. Individual and group study procedures. Prereq: perm. *Lynn*

Ed.SE 743. Research and Problems in Secondary Education—Academic Curriculum (4)

Secondary education problems related to specific aspects of academic curriculum. Prereq: perm.

Ed.SE 744. Research and Problems in Secondary Education—Special Fields Curriculum (4)

Secondary education problems related to specific aspects of special fields curriculum. Prereq: perm.

Ed.SE 745. Research and Problems in Secondary Education—Vocational Curriculum (4)

Secondary education problems related to specific aspects of vocational curriculum. Prereq: perm.

Ed.SE 746. Research and Problems in Secondary Education—Activities Curriculum (4)

Secondary education problems related to specific aspects of activities curriculum. Prereq: perm.

Ed.SE 750. Practicum in Secondary Education—Mathematics (4)

Depth study of school system and its mathematics curriculum with critique by faculty and report by student, utilizing available research. Prereq: perm.

Ed.SE 751. Practicum in Secondary Education—Science (4)

Depth study of school system and its science curriculum with critique by faculty and report by student, utilizing available research. Prereq: perm.

Ed.SE 752. Practicum in Secondary Education—Social Studies (4)

Depth study of school system and its social studies curriculum with critique by faculty and report by student, utilizing available research. Prereq: perm.

Ed.SE 753. Practicum in Secondary Education—English (4)

Depth study of school system and its English curriculum with critique by faculty and report by student, utilizing available research. Prereq: perm.

Ed.SE 754. Practicum in Secondary Education—Modern Foreign Languages (4)

Depth study of school system and its modern foreign language curriculum with critique by faculty and report by student, utilizing available research. Prereq: perm.

Ed.SE 755. Seminar in Secondary School Curriculum and Instruction (4)

Important problems and issues in secondary schools. Emphasis on curriculum and instruction. Prereq: perm. *Boyd*

Ed.SE 790. Advanced Research in Secondary Education (2-6)

Individual research on problem in field of secondary education. Prereq: perm. *Boyd*

Educational Foundations**Ed.EF 500. History of Western Education (4)**

History of education in Western world from 500 B.C. to present. Brief sketch of history of education in Near East. Prereq: perm. *Shoemaker*

Ed.EF 501. History of Education in the U.S. (4)

Education in the United States from colonial period to present. Social, political, economic, religious, and philosophical foundations which have conditioned evolution of public schools. Prereq: perm. *Shoemaker*

Ed.EF 503. Evolution of Educational Thought (4)

Plato's *Republic* and writings on education by Aristotle, Plutarch, Quintilian, Luther, Eras-

mus, the Jesuits, Montaigne, Rousseau, Pestalozzi, Herbart, Froebel, and Dewey. Prereq: perm. *Shoemaker*

Ed.EF 514. Philosophies of Education (4)

Realistic, idealistic, pragmatic, and essentialist schools of thought and their implications for theories and practices in education. Prereq: perm. *Shoemaker*

Ed.EF 515. Social Structure and Change in Education (3)

School system as social institution with reference to roles of administrators, teachers, and clients. Areas of study include sources of strain, conflict resolution, organization and leadership climates, functions of formal and informal organizations, and career problems of school personnel. Prereq: perm.

Ed.EF 710. Advanced Social Foundations of Education (5)

Interdisciplinary study of institutions and stresses that are placed upon their members, especially as these social forces influence American education.

Ed.EF 711. Seminar: Analysis of Educational Roles (4)

Role theory with special reference to key education roles. Knowledge about educational roles assessed leading to needed research in this area.

Ed.EF 712. Research on Behavior and Development of Youth (4)

Individual research on problem relative to behavior and development of youth.

ELEMENTARY EDUCATION

(See Education)

ENGINEERING AND TECHNOLOGY

CHEMICAL
CIVIL
ELECTRICAL
INDUSTRIAL AND SYSTEMS
MECHANICAL

Fahey (dean).

Programs of graduate study may be formulated with majors in chemical, civil, electrical, industrial and systems, or mechanical engineering.

The standard four-year course in engineering or its equivalent, as offered in insti-

tutions approved by the Engineers' Council for Professional Development, is a general prerequisite for graduate study. Graduates in science and other fields of engineering, whose programs have included sufficient courses in mathematics, physics, chemistry, the humanities, and the social sciences, may be accepted as graduate students. Such students must take such undergraduate courses in basic engineering subjects as the staff may require.

CHEMICAL ENGINEERING

Baasel, Baloun, Collier, Dinos, Kendall, Mayer (graduate committee chairman), Throne.

Graduate students working toward a master's degree in chemical engineering are expected to take at least 21 hours in graduate level chemical engineering courses, including 500, 501, 502, 542, 543, and 544.

Students who choose to do so may also complete requirements for a minor field by selecting at least 12 hours of graduate courses in other fields of engineering, or in mathematics, chemistry, physics, or materials science. All resident graduate students are expected to participate in departmental graduate seminars each quarter.

Listed courses would also be acceptable for a minor in chemical engineering.

Programs leading to the M.S. degree in chemical engineering are available for students who have received bachelor's degrees in chemistry or related fields.

***500. Applied Chemical Engineering Calculations (3)**

Setting up of ordinary and partial differential equations corresponding to chemical engineering situations. Methods available for their solutions including classical, numerical, and computer techniques. 3 lec. Prereq: perm.

501, 502. Advanced Chemical Engineering—Thermodynamics (3, 3)

Chemical engineering processes, pure materials, and mixtures. Criteria of equilibrium for homogeneous and heterogeneous systems. Correlation and estimation of properties; thermodynamics consistency tests; and thermodynamics of irreversible processes. 3 lec.

503. Advanced Kinetics (3)

Use of chemical engineering kinetics and principles of similarity and model theory in design and scale-up of reactors, pilot plants, and processes. 3 lec.

506, 507, 508. Thermodynamics of Solids I, II, III (3, 3, 3)

Interpretation of thermodynamic quantities in

atomistic terms with relationship to both ideal and defect structures in crystalline materials. Methods of obtaining thermodynamic data from phase diagrams and determination of phase diagram consistency. 3 lec. each. Prereq: perm.

530. Advanced Metallic Corrosion (3)

Review of basic principles and current theories of stress corrosion and embrittlement, corrosion fatigue, and transgranular and intergranular corrosion. Some laboratory work utilizing recent techniques and apparatus. 3 lec. Prereq: perm.

531, 532, 533. Transformations in Metallic Solids I, II, III (3, 3, 3)

Kinetics of reactions in metallic solids; diffusion, eutectoid, bulk and other solid reactions. 3 lec. each. Prereq: perm.

534, 535, 536. Theoretical Structural Metallurgy I, II, III (3, 3, 3)

Advanced physical metallurgy. More complex atomic arrangements in metals and alloys. Elastic and plastic properties of single and polycrystalline materials including creep, creep recovery, and the Bauschinger effect. 3 lec. Prereq: perm.

540. Process Dynamics (3)

Systems analysis. Use of automatic control in chemical processes. Determination of stability of processes containing feedback. 3 lec. Prereq: perm.

542, 543, 544. Advanced Transport Phenomena (3, 3, 3)

Theoretical basis of development of heat, mass, and momentum transfer. Boundary layer theory and comparison with other theoretical and semi-theoretical approaches. 3 lec.

545. Advanced Chemical Engineering Operations (3)

Selected topics from absorption and extraction. Multicomponent, azeotropic, and extractive distillation. Non-ideal separation processes. 3 lec. Prereq: perm.

571. Polymer Properties I (3)

Molecular weight, molecular weight distributions, solution properties, conformations of amorphous polymers, rheology of polymer solutions and melts, and analysis and testing of polymers. 3 lec. Prereq: perm.

572. Polymer Properties II (3)

Polymer transitions, morphology of crystalline polymers, crystallization kinetics, effect of morphology on physical properties, and methods of altering physical properties. 3 lec. Prereq: 571 or perm.

573. Polymer Properties III (3)

Orientation and fiber properties, composite materials, time-temperature superpositioning of mechanical properties, thermal stability, and stress cracking. Relationship between ultimate properties and possible uses of polymeric materials. 3 lec. Prereq: 571 and 572, or perm.

574, 575, 576. Advanced Polymer Engineering (3, 3, 3)

Engineering of synthetic polymeric materials. Application of transport phenomena, advanced kinetics and reactor design, and mechanics of continuous media to problems peculiar to macromolecular materials. Viscoelastic behavior of flowing thermoplastics and diffusion with multiple chemical reactions. 3 lec. each. Prereq: 571 or perm.

577. Polymer Synthesis and Properties (3)

Synthesis mechanisms and how these mechanisms, resultant polymers, and their properties are interrelated. 3 lec. Prereq: perm.

681. Research in Chemical Engineering (1-4)

690. Special Topics in Chemical Engineering (1-3)

Advanced study in a particular field of chemical engineering.

691, 692, 693. Readings and Seminar (1, 1, 1)

Assigned readings and special reports in selected areas of chemical engineering theory and practice.

695. Thesis (as recommended by dept.)

703, 704, 705. Engineering Analysis (3, 3, 3)

Application of modern mathematical tools such as tensor calculus, matrix analysis, functional approximations, iterative methods, asymptotic approximations, and special function theory to problems in major fields of engineering. Mathematical modeling, alternative methods of approach to solution, and interpretation of results. 3 lec. Prereq: perm.

CIVIL ENGINEERING

Badger, Davidson, Hazen, Kaneshige, Olson (graduate committee chairman), Shermer (chairman), Wang.

In civil engineering, a master's degree may be earned in the fields of solid mechanics, soil engineering, sanitary engineering, structures, or transportation. Related courses in other departments may be included; for example, courses in mechanical engineering or physics may be taken by students majoring

in mechanics, and courses in chemistry or bacteriology may be taken by students majoring in sanitary engineering. The program should total 45 quarter hours including a special investigation project, or 32 quarter hours plus a thesis. A minor field should make up at least 12 quarter hours of course work. All programs are arranged by students to meet their individual needs in consultation with their adviser subject to the approval of the department graduate committee.

515. Photogrammetry (3)

Equipment and methods used in aerial photography and land measurement. 2 lec., 2 lab. Prereq: perm. (Fall quarter)

***524. Strength of Materials (3)**

Theories of failure, unsymmetrical bending, shear center, and other topics not covered in undergraduate course. For non-civil engineering majors. 3 lec. Prereq: perm. (Fall quarter) *Badger*

***525. Advanced Strength of Materials (4)**

Advanced treatment of theories of failure, stresses and strains at a point, cross shear, unsymmetrical bending, curved beams, torsion, thick-walled cylinders, energy methods. 4 lec. Prereq: perm. (Fall quarter) *Adams*

526. Theory of Stability (3)

Buckling of columns, beam columns, and rings. 3 lec. (Fall quarter)

527. Experimental Stress Analysis (3)

Elasticity theory, theory and use of strain gages, and photoelastic equipment. 1 lec., 6 lab. Prereq: 525. (Winter quarter)

528. Theory of Elasticity I (3)

Theory of stress and strain; generalized Hooke's Law; equations of equilibrium and compatibility; plane stress and plane strain problems; finite-difference approximations and the application of digital computer programming. 3 lec. Prereq: 525. (Winter quarter) *Adams*

529. Theory of Elasticity II (3)

Energy principles and variational methods. Applications of complex variables, bending of thin plates. 3 lec. Prereq: 528. (Spring quarter) *Adams*

535. Advanced Structural Theory I (4)

Analysis of indeterminate structures by both classified and modern methods. Analysis of multistory bents, arches, closed rings, and frames with variable cross-sections. Plastic theory and design. 4 lec. Prereq: perm. (Fall quarter) *Shermer*

536. Advanced Structural Theory II (4)

Continuation of 535, relaxation methods, matrix methods, shell structures. 4 lec. Prereq: 535 (Winter quarter) *Shermer*

537. Advanced Structural Design (4)

Design of indeterminate structures. Modern design concepts and principles as applied to various construction materials. 4 lec. Prereq: 535, 536. (Spring quarter) *Shermer*

***542. Applied Hydraulics (3)**

For non-civil engineering majors. Flow and pressure distribution in multi-loop networks, dynamics of flow in pumps and turbines. Uniform and non-uniform flow in open channels culvert hydraulics, hydraulic transients. 2 lec., 2 lab. Prereq: perm. (Spring quarter) *Olson*

543. Open Channel Hydraulics (3)

Principles of uniform and varied flow. Channel design for uniform flow, gradually varied flow profiles, channel transitions, hydraulic pumps, flow in prismatic and nonprismatic channels. 3 lec. Prereq: perm. (Fall quarter) *Olson*

***546. Advanced Fluid Mechanics I (3)**

Inviscid flow theory. General equations of fluid mechanics, study of potential flows. 3 lec. Prereq: perm. (Fall quarter) *Olson*

***547. Advanced Fluid Mechanics II (3)**

Viscous flow theory. Mechanics of fluid resistance, laminar and turbulent flow, applications to external boundary layer flow and to flow in ducts. 3 lec. Prereq: perm. (Winter quarter) *Olson*

555. Advanced Water Treatment (4)

Advanced study of water treatment theory. Design of treatment units. Practice in control methods. 4 lec. Prereq: perm. (Fall quarter) *Kaneshige*

556. Advanced Waste Water Treatment (4)

Advanced study of waste water treatment theory. Design of treatment units. Practice in control methods. 4 lec. Prereq: perm. (Winter quarter) *Kaneshige*

564. Advanced Traffic Engineering (4)

Highway and street traffic movements, traffic analysis and control as affecting geometric design of roadways and parking facilities. 3 lec., 3 lab. Prereq: perm. (Winter quarter)

***570. Soil Engineering (4)**

For non-civil engineering majors. Soil composition, physical and chemical properties, and

classifications. Water movement and seepage problems; stress distribution, settlement, and shear strength. Applications to earth structures, retaining walls, foundations, and slope stability. 3 lec., 2 lab. Prereq: perm. (Winter quarter) *Wang*

572. Soil Mechanics I (3)

Water movement through soil, construction and interpretation of flow nets. Elastic equilibrium, stress distributions, consolidation theories, and settlement. 3 lec. Prereq: perm. (Fall quarter) *Wang*

573. Soil Mechanics II (3)

Shearing strength. Plastic equilibrium, bearing capacity, lateral soil pressures, and slope stability. 3 lec. Prereq: perm. (Winter quarter) *Wang*

574. Soil Mechanics Laboratory (1)

Techniques of soil mechanics measurements. Shear tests, pore pressure, volume change. Consolidation, permeability, and capillarity; model tests. 3 lab. Prereq: 572, 573. (Spring quarter) *Wang*

575. Advanced Foundation Engineering (3)

Substructure analysis and design to meet various soil conditions. Settlement and bearing capacity analyses of various types of foundations and retaining structures. Case studies. 3 lec. Prereq: 572, 573. (Spring quarter) *Wang*

576. Soil Stabilization (4)

Engineering, geological, and pedological soil classification systems. Mineralogy of clay minerals and clay-water systems; requirements for and factors affecting soil stability. Methods and mechanisms of soil stabilization; design and testing stabilized soils. 3 lec., 3 lab. Prereq: perm. (Fall quarter) *Wang*

582. Bituminous Paving Materials and Mixtures (3)

Types, constituents, chemical behavior, tests, specifications, and uses of bituminous materials and aggregates in pavements. Design and manufacture of bituminous paving mixtures and construction of bituminous pavements. 2 lec., 3 lab. (Winter quarter) *Wang*

583. Principles of Pavement Design (3)

Fundamentals of wheel loads and stresses in pavements. Properties in pavement components and design tests. Design methods and evaluations. 3 lec. (Spring quarter) *Wang*

*590. Special Investigations (1-5)

Special investigations or problems not covered by formal courses and not requiring a thesis. Prereq: perm. (All terms)

594. Research (1-6)

Research leading to writing of thesis. Prereq: perm. (All terms)

595. Thesis (as recommended by dept.)

ELECTRICAL ENGINEERING

Cartland, H. Chen, W. Chen, Essman, Gilfert, Hoffee (acting chairman), Klock (graduate committee chairman), McFarland, Miro, Quisenberry, Raju, Selleck, Smith.

Graduate study leading to both the master's degree and the doctorate is offered in electrical engineering. Prospective students for these degrees should have completed the requirements for a baccalaureate degree with a major in electrical engineering. Students who lack such preparation are expected to make up deficiencies in addition to the normal graduate program of courses.

Courses in related fields may be included in the graduate program, as for example, chemistry, physics, mathematics, and other branches of engineering. The graduate program of study is individually planned for each student after a careful review of his experience and education.

The following courses are recommended for the first nine hours of graduate study: 516, 543, and Math 510.

*505. Physical Electronics (3)

Preparation for subsequent detailed study of solid-state, gaseous, and quantum-electronic devices. Depth of background in selected pertinent areas of electrical science. Solutions to selected problems required. Prereq: perm.

*506. Solid-State Devices (3)

Selected solid-state devices, including semiconductor devices. Physical reasons for design and application limitations. Possibilities for future developments. Current research literature assigned for critical study and term reports. Prereq: 505.

*507. Advanced Electronic Circuits I (3)

Techniques and application in switching, shaping, and pulse circuitry. Seminar-type report on system that uses material covered is required. Prereq: perm.

*508. Advanced Electronic Circuits II (3)

Theory and design of video and bandpass amplifiers. Seminar-type report on specific design problem required. Prereq: 507 or perm.

*509. Solid-State Instrument Design (3)

Electronic instruments and instrument sub-assemblies including amplifiers, wave-form various solid-state devices, such as diodes,

transistors, unijunctions, FET's, and integrated circuits. Term papers exploring latest development on selected topics presented and defended by students. Prereq: perm.

***510. Linear Networks and Systems (3)**

Matrix circuit analysis, topological circuit analysis, properties and methods of simplification of flow graphs, the derivation of Mason's and Coates' gain formulae. Properties of linear systems; introduction to time-varying linear systems. Prereq: perm.

***511. Network Synthesis I (3)**

Theory of network design. Positive real functions, synthesis of general passive one-ports, approximation, parts of network functions, potential analogy. Prereq: perm.

516. Linear Network Theory I (3)

Elementary network topology, general formulations of mesh and node analysis of networks, network transformations and equivalences, scattering properties of networks.

517. Linear Network Theory II (3)

Continuation of 516. Network properties in the complex frequency and time domains. Integral solutions, representations of network functions, analytic properties of network functions, relationships between frequency and time response. Prereq: 516.

523. Nonlinear Analytical Techniques (3)

Dynamic systems—use and limitations of phase plane portraits in characterization of non-linear components and non-linear activation. Non-linear phenomena and classification of singularities; role of the forcing function. Solutions found through methods of residues and variation of parameters; selection process as means for decision making in problem solution; influence of selected criteria. Applications to networks, controlled systems and optimal control systems; problems and techniques of Poincaré, Lienard, and others. Studies of systems with analytical solutions.

***525. Automatic Control I (3)**

Closed-loop control; formation of linear models for lumped-parameter and distributed-parameter electro-mechanical systems. Signal flow graph representation of system equation; stability analysis using Nyquist and Routh-Hurwitz and other techniques. Identification of process parameters from experimental data. Each student presents a paper on a specified design problem. Prereq: perm.

***526. Automatic Control II (3)**

Specifications of performance; return difference and sensitivity; synthesis of active and

passive networks for controller compensation; minor loop compensation. Each student presents a paper on a specified design problem. Prereq: 525.

***527. Automatic Control III (3)**

Control of interacting systems. Non-linear systems; function techniques for stability analysis. Systems with time-varying parameters; sampled-data systems. Prereq: 526.

***529. Automatic Process Control and Instrumentation (3)**

Systems dynamics, fluids—mechanical electronic, closed-loop process analysis, sensors, recorders, controllers, magnetic controllers. Prereq: perm.

***530. Theory of Measurements (3)**

Dynamics of D.C. and A.C. instruments, null measurements techniques; statistical errors, mechanical and magnetic measurements. Assignments for high precision laboratory measurements and error analysis. Special assigned topics for report. Prereq: perm.

***531. Instrumentation (3)**

Remote supervision and remote metering. Process instrumentation analysis, special process assignments, data logging. Special project assignment required in some selected area of process instrumentation. Prereq: 530.

536. Selected Topics in Control (3)

Detailed study of one or two topics using technical journals, reports, etc. Students read selected references and report orally or in writing to class. Possible topics include adaptive systems, self-organizing systems, aspects of optimal control. Prereq: 593 or perm.

538. Statistical Design and Analysis of Controlled Systems (3)

Conditions of risk, uncertainty, and competition as applied to controlled systems; constraint of physical realizability. Propagation of tolerances and errors as related to reliability and system integrity; statistical aspect of adaptivity in controlled systems. Prereq: 539 or perm.

539. Stochastic Control Systems (3)

Statistical properties; functions of statistical design theory and probability theory. Physical realizability; correlation functions; linear control system and network design for random inputs. Prereq: 527.

***540. Microwave Theory and Devices (3)**

Generation and transmission of electromagnetic energy in frequency ranges 300 MHz upwards. Klystrons, magnetrons, lasers, wave-

guides, and resonators; laboratory demonstrations and experiments. Technical reports prepared by individual students defended orally. Prereq: perm.

***541. Antennas (3)**

Radiating structures, analysis and synthesis of arrays, impedance, radiation patterns, gain, and discussion of selected practical examples. Students perform experimental and theoretical studies and submit reports. Prereq: perm.

***542. Introduction to Radar and Aircraft Navigation Systems (3)**

Microwave radar, design of radar transmitters and receivers, application to aircraft navigation, comparisons with VOR and ILS. Students submit individual reports. Prereq: 541.

***543. Electromagnetics I (3)**

Electrostatics, magnetostatics, boundary value problems and related math techniques, time varying fields, boundary conditions, propagation in dielectric and conducting media, dispersion, elements of waveguide and resonator theory. Problems complementing the lectures assigned. Prereq: perm.

545. Electromagnetics II (3)

Plane, cylindrical, and spherical waves including special math functions and their applications. Electromagnetic potentials, duality, uniqueness, image theory, equivalence principle. Reciprocity theorems and applications, perturbational and variational techniques. Prereq: 543. (*Recommended for all graduate students.*)

546. Electromagnetics III (3)

Green's functions and applications, geometrical theory of diffraction, special relativity, relativistic formulation of electromagnetics. Prereq: 545.

547. Nonlinear Wave Interactions (3)

Propagation in anisotropic media, dispersion, nonlinear susceptibility tensors and their properties. Frequency conversion, Brillouin scattering, Raman effect, generation of hypersonic waves. Coupled mode theory, theory of parametric interactions, nonlinear properties of plasma. Prereq: 543.

550. Control of Electrical Machinery (3)

Magnetic and electronic motor controllers; control theory and application to given problems. Control design to meet given specifications required. Prereq: perm.

***551. Symmetrical Components (3)**

Circuits analysis by symmetrical components, representation of unbalanced polyphase cur-

rents and voltages by component symmetrical sets. Solutions of faults on power systems, unbalanced operation of power equipment. Prereq: perm.

***552. Power Transmission (3)**

Economic and electrical principles of electric power lines, mechanical principles of transmission line design. Special problems in geometric mean distance applications, and sag-tension calculations. Prereq: perm.

***553. Power Distribution (3)**

Fault current calculations and automatic fault isolation on a coordinated distribution system; study of over current relays, oil circuit relays, sectionalizers, and fuse coordination; load and voltage studies of distribution radial and network systems. Students make all necessary calculations and apply coordination principles to a complete distribution system. Prereq: perm.

554. Electrical Design (3)

Design relationship of electrical machinery, including design of machine and predetermining of its performance. Students design machine to a pre-set list of specifications; electrical and economic factors included. Prereq: perm.

555. Central Station Design (3)

Application of economic principles to problems of loading, load sharing, and design of electric power central stations. Students make cost analysis of specified problems. Prereq: perm.

558. Power System Stability Studies (3)

Stability of large power systems, both synchronous and asynchronous loadings. Maximum use of digital computer techniques and matrix algebra. Prereq: 551.

***560. Analog and Digital Computer Methods (3)**

Systems and preparation of programs for analog or digital computers. Various forms of programming languages considered; emphasis upon Fortran. Examples and applications drawn from wide range of topics such as control systems, transportation systems, economic systems, computer-aided design, etc.

***561. Combinational Circuits (3)**

Postulates and fundamental theorems of boolean algebra. Map and algebraic methods for design of combinational logic circuits using contacts or electronic devices. Minimization techniques.

***562. Sequential Circuits (3)**

Basic ideas from theory of finite-state machines. Synthesis of sequential circuits using

contact or electronic devices. State assignment, synchronous and asynchronous circuit race conditions, etc. Prereq: 561.

***563. Digital Computer Design (3)**

Functional organization of digital computers for control and data processing, definition of functional characteristic of subsystems. Current computer component technology. Several types of machines designed in varying degrees of detail. Prereq: 562.

***568. Communication Engineering (3)**

Unified approach to study of communications stressing principles common to all transmission systems; measurement of information. Fourier series; Fourier integral, frequency spectrum, time response, amplitude modulation (double and single sideband), frequency modulation, sampling theory, pulse modulation. Students give seminar-type reports on specified communications systems. Prereq: perm.

***569. Statistical Analysis (3)**

Analysis of engineering problems using probabilistic and statistical concepts. Probability discrete and continuous random variables, distribution functions, means, moments, characteristic functions, statistical independence, correlation, estimation, and application to engineering problems. Students submit term papers demonstrating concepts investigated in course applied to engineering problem. Prereq: perm.

571. Fundamental of Statistical Communication Theory (3)

Analysis of non-deterministic signals in linear systems. Probability density, correlation, spectral density, noise, and gaussian random process. Optimum linear systems, smoothing and prediction of stationary inputs, matched filter. Envelope detection in presence of noise. Statistical detection of signals; fundamental ideas of information theory. Prereq: perm.

572. Modulations Systems (3)

Performance of familiar communications systems within context of statistical concepts and random noise representations. Correlation and spectral analysis and narrow band noise, linear modulation, synchronous demodulation, suppressed carrier techniques, angle modulation. Noise in FM, threshold effects in FM, frequency division multiplexing, correlation detection, coherent binary signaling, coherent phase-reversal keying, differential phase keying, and optimum detection and decision theory. Prereq: 571.

573. Digital Detection Systems (3)

Detection of digital signals using decision theory concepts; conventional and unconventional communication systems. Channel characteristics, Hilbert transforms, signal space representations, optimum detection of known signals, detection of signals with a finite number of unknown parameters. Estimation, estimator-correlator receivers, adaptive type receivers, sub-optimum receivers. Prereq: 571.

***575. Introduction to Plasma Dynamics (3)**

Elementary properties and processes of ionized gases and conducting fluids. Conductivity, transport phenomena, creation of plasma. Current and recent experiments and applications treated in critical term reports. Prereq: perm.

578. Advanced Plasma Dynamics I (3)

Properties of partially and fully ionized gases from particle point of view; collision-free plasmas. Boltzmann distribution theory. Prereq: 545.

579. Advanced Plasma Dynamics II (3)

Continuation of 578. Oscillation in plasmas, transport processes, radiation from plasma, confinement and stability. Prereq: 578.

581. Research in Electrical Engineering (1-6)

(Not acceptable for completion of graduate degree requirements.)

588. Analysis of Engineering Situations (3)

Problem solution from modern engineering viewpoint. Characterization of situations through use of mathematical models, parameter sensitivity matrices, and constraint relationships. Analytical methods for trade-off studies, solution of pay-off or objective function. Applications of the variational calculus, game theory in multiple-variable optimization as part of decision making in the search for practical solutions. Prereq: perm.

590. State Variable Concepts (3)

Vector-matrix formulation of state variable differential equations for linear and nonlinear networks, electro-mechanical systems, processes, etc. Fundamental properties and characteristics of linear systems derived from state variable approach; introduction to network and control system synthesis. Stability analysis using Liapunov's other methods. Prereq: perm.

591. Control System Optimization I (3)

Function space concepts for systems theory and optimization; dynamic programming formulation of control laws; optimality in sense of Pontryagin and others. Study of various

optimal control problems such as minimum-time, minimum-energy, etc.; structure of multi-level control systems. Prereq: 590.

592. Control System Optimization II (3)
Continuation of 591. Prereq: 591.

593. Optimization of Electronics Systems (3)
System engineering viewpoint applied to design and evaluation of electronically mechanized systems. Operational characteristics of information, energy, and hybrid systems. Valid optimization; multiple-parameter optimization; system and cost effectiveness. Prereq: perm.

594. Optimization of Complex Engineering Systems (3)

Development of concept, conceptual design, and major function analysis of large complex systems; technique for optimizing traffic handling of information, computer control size, and system operability. Comparative studies and desired optimization characteristics for information and energy resources management; comparative optimization for various operational modes. Relationship of reliability to product effectiveness for complex systems; optimization techniques applied to off-design performance prediction and level selection. Generalized problem of optimization for design synthesis and analysis. Prereq: 588 or perm.

597. Analysis of Nonlinear Systems (3)

Comparison of various selection criteria in design and evaluation of nonlinear systems with non-linear stimulation and/or control. Application to time-optimal and other optimal controlled systems, with non-linear multiple mechanizations and operational modes, utilization of nonlinear analytical techniques in information management and energy conversion systems. Analytical methods applied to non-linear multiple-parameter trade-off portraits. Prereq: 523.

610. Advanced Combinational Circuits (3)

Algebraic systems: lattices, groups. Application to combinational circuit theory; classes of functions such as symmetric, monotonic, etc.; boolean matrices. Prereq: 563.

611. Advanced Sequential Circuits (3)

Sequential circuits using advanced concepts; state assignment, state minimization, partition theory. Prereq: 510 or 610.

612. Automata Theory (3)

Fundamental concepts in automata theory; one-tape and multi-tape, turing machines, regular expressions, relation between automata

theory and mathematical linguistics. Prereq: 511 or 611.

616. Linear Network Theory I (3)

Elementary network topology, general formulation of mesh and node analysis of networks, network transformations and equivalences. Scattering properties of networks and theory of nonreciprocal circuits. (*Recommended for all graduate students.*)

617. Linear Network Theory II (3)

Continuation of 616. Network properties in complex frequency and time domains. Integral solutions, representations of network functions, analytic properties of network functions, relationships between frequency and time response. Prereq: 516 or 616.

618. Network Topology (3)

Linear graph theory, matrix representation of linear graph, properties of incidence, circuit, cut-set matrices, concept of duality. General derivation of topological formulae for linear lumped networks; application to analysis and synthesis of communication nets. Prereq: 516 and 517.

620. Network Synthesis II (3)

Properties of two-port functions, realization of two-ports with two kinds of elements, insertion-loss synthesis, realization general passive two-ports, approximation. Prereq: 511 or 611.

621. Network Synthesis III (3)

N-port analysis, n-port synthesis, synthesis through Richards' transformation, Oono's synthesis, active network synthesis, synthesis of active RC one-ports. Prereq: 620.

623. Nonlinear Analytical Techniques (3)

Dynamic systems-use and limitations of phase plane portraits in characterization of nonlinear components and non-linear activation. Non-linear phenomena and classification of singularities; role of the forcing function. Solutions found through methods of residues and variation of parameters; selection process as means for decision making in problem solution; influence of selected criteria. Applications to networks, controlled systems, and optimal control systems; problems and techniques of Poincaré, Lienard, and others. Studies of systems with analytical solutions. Linearization techniques, and error-tolerance determination.

636. Selected Topics in Control (3)

Detailed study of one or two topics using technical journals, reports, etc. Students read selected references and report orally or in

writing to class. Possible topics include adaptive systems, self-organizing systems, aspects of optimal control. Prereq: 693.

638. Statistical Design and Analysis of Controlled Systems (3)

Conditions of risk, uncertainty and competition as applied to controlled systems; constraint of physical realizability. Propagation of tolerance and errors as related to reliability and system integrity; statistical aspect of adaptivity in controlled systems. Specialized problems of design based upon statistics, random inputs, and time-variant conditions. Prereq: 539 or perm.

639. Stochastic Control Systems (3)

Statistical properties; functions of statistical design theory and probability theory. Physical realizability; correlation functions; linear control system and network design for random inputs. Term paper may be required. Prereq: 527.

645. Electromagnetics II (3)

Plane, cylindrical, and spherical waves including special math functions and their applications. Electromagnetic potentials, duality, uniqueness, image theory, equivalence principle. Reciprocity theorems and applications, perturbational and variational techniques. Problems which emphasize application of these principles to electrical engineering assigned. Prereq: 543. (*Recommended for all graduate students.*)

646. Electromagnetics III (3)

Green's functions and applications, geometrical theory of diffraction, special relativity, relativistic formulations of electromagnetics. Problems pertinent to current research interests. Prereq: 545 or 645.

647. Nonlinear Wave Interactions (3)

Propagation in anisotropic media, dispersion, non-linear susceptibility tensors and their properties. Frequency conversion, Brillouin scattering, Raman effect, generation of hypersonic waves. Coupled mode theory, theory of parametric interactions, nonlinear properties of plasma. Problems pertinent to current research assigned. Prereq: 543.

648. Radiation and Noise in Quantum Electronics (3)

Dirac formulation of quantum mechanics, elementary quantum systems, operator algebra, quantization of E-M field. Interaction of radiation with matter, quantum statistics, quantum statistics of attenuators and linear amplifiers. Prereq: 547 or 647.

649. Coherent Fields (3)

Theory of coherence, reception of weak signals in noise, holography, optical radar, propagation through turbulence. Optical antennas, scattering of intense coherent fields, current research topics. Prereq: 548 or 648.

658. Power System Stability Studies (3)

Stability of large power systems, both synchronous and asynchronous loadings. Maximum use of digital computer techniques and matrix algebra. Students present papers on individually assigned problems. Prereq: 551.

671. Fundamentals of Statistical Communication Theory (3)

Analysis of non-deterministic signals in linear systems. Probability density, correlation, spectral density, noise, and gaussian random process. Optimum linear systems, smoothing and prediction of stationary inputs, matched filter. Envelope detection in the presence of noise. Statistical detection of signals; fundamental ideas of information theory. Problems to illustrate applications of statistical concepts in communication systems considered on individual basis. Prereq: perm.

672. Modulations Systems (3)

Performance of familiar communication systems within context of statistical concepts and random noise representations. Correlation and spectral analysis and narrow band noise, linear modulation, synchronous demodulation, suppressed carrier techniques, angle modulation. Noise in FM, threshold effects in FM, frequency division multiplexing, correlation detection, coherent binary signaling, coherent phase-reversal keying, differential phase keying, and optimum detection and decision theory. Individual problems associated with state of art techniques considered. Prereq: 571 or 671.

673. Digital Detection Systems (3)

Detection of digital signals is considered using decision theory concepts; conventional and unconventional communication systems. Channel characteristics, Hilbert transforms, signal space representations, optimum detection of known signals, detection of signals with a finite number of unknown parameters. Estimation, estimator-correlator receivers, adaptive type receivers, sub-optimum receivers. Current techniques and problems as reported in literature considered. Prereq: 571 or 671.

678. Advanced Plasma Dynamics I (3)

Properties of partially and fully ionized gases from particle point of view; collision-free plasmas. Boltzmann distribution theory. Items in current or recent literature assigned for

critical review in term reports. Prereq: 545 or 645.

679. Advanced Plasma Dynamics II (3)

Continuation of 578 or 678. Oscillation in plasmas, transport processes, radiation from plasmas, confinement and stability. Items in current or recent literature assigned for critical review in term reports. Prereq: 578 or 678.

680. Magnetohydrodynamics (3)

Follows from 579 or 679. Magnetohydrodynamic approximations, Alfen waves, consequences of viscosity and finite conductivity, and Hartmann flow. Prereq: 579 or 679.

681. Research in Electrical Engineering (1-6)

Prereq: perm. and 45 quarter hours of graduate study. *(Not acceptable for completion of graduate degree requirements.)*

690. State Variable Concepts (3)

Vector-matrix formulation of state variable differential equations for linear and nonlinear networks, electro-mechanical systems, processes, etc. Fundamental properties and characteristics of linear systems derived from state variable approach; introduction to network and control system synthesis; stability analysis using Liapunov's and other methods. Term paper may be required. Prereq: perm.

691. Control System Optimization I (3)

Function space concepts for systems theory and optimization; dynamic programming formulation of control laws; optimality in sense of Bellman, Pontryagin, and others. Study of various optimal control problems such as minimum-time, minimum-energy, etc.; the structure of multi-level control systems. Term paper may be required. Prereq: 590.

692. Control System Optimization II (3)

Continuation of 591 or 691. Prereq: 591 or 691.

693. Optimization of Electronic Systems (3)

System engineering viewpoint applied to design and evaluation of electronically-mechanized systems. Operational characteristics of information, energy, and hybrid systems. Valid optimization; multiple-parameter optimization; system and cost effectiveness. Constraints of reliability and maintainability.

694. Optimization of Engineering Systems (3)

Development of concept, conceptual design, and major function analysis of large complex systems; technique for optimizing traffic handling of information, computer control size, and system operability. Comparative studies

and desired optimization characteristics for information and energy resources management; comparative optimization for various operational modes. Relationship of reliability to product effectiveness for complex systems; optimization techniques applied to off-design performance prediction and level selection. Generalized problem of optimization for design synthesis and analysis. Term paper may be required. Prereq: 538 or perm.

695. Thesis (as recommended by dept.)

Prereq: perm.

697. Analysis of Nonlinear Systems (3)

Comparison of various selection criteria in design and evaluation of nonlinear systems with nonlinear stimulation and/or control. Application to time-optimal and other optimal controlled systems, with nonlinear multiple mechanizations and operational modes, utilization of nonlinear analytical techniques in information management and energy conversion systems. Analytical methods applied to nonlinear multiple-parameter trade-off portraits. Term paper may be required. Prereq: 523 or 623.

710. Advanced Combinational Circuits (3)

Algebraic systems, lattices, groups. Application to combinational circuits theory; classes of functions such as symmetric, monotonic, etc.; boolean matrices. Term paper may be required. Prereq: 563.

711. Advanced Sequential Circuits (3)

Sequential circuits using advanced concepts, state assignment, state minimization, partition theory. Term paper may be required. Prereq: 562.

712. Automata Theory (3)

Fundamental concepts in automata theory, one-tape and multi-tape, turing machines, regular expressions, relation between automata theory and mathematical linguistics. Term paper may be required. Prereq: 511, 611, or 711.

748. Radiation and Noise in Quantum Electronics (3)

Dirac formulation of quantum mechanics, elementary quantum systems, operator algebra, quantization of E-M field. Interaction of radiation with matter, quantum statistics, quantum statistics of attenuators and linear amplifiers. Application of these principles to sophisticated quantum electronic devices. Prereq: 547 or 647.

749. Coherent Fields (3)

Theory of coherence, reception of weak signals in noise, holography, optical radar, prop-

agation through turbulence. Optical antennas, scattering of intense coherent fields, current research topics. Students participate in solution of current research problems. Prereq: 648.

780. Magnetohydrodynamics (3)

Follows from 579 or 679. Magnetohydrodynamic approximations, Alfen waves, consequences of viscosity and finite conductivity, and Hartmann flow. Items in current and recent literature assigned for critical study in term reports. Prereq: 579 or 679.

881. Doctoral Research (1-9)

Prereq: perm.

895. Dissertation (as recommended by dept.)

Prereq: perm.

INDUSTRIAL AND SYSTEMS ENGINEERING

Fink, Gamble, Overby, Scheck, Williams (chairman).

The Master of Science program in industrial and systems engineering is fitted to the goals of the individual student. Course concentrations are available in industrial systems analysis, management systems engineering, operations research, and behavior systems engineering. The usual minimum requirements are 33 or more quarter hours of course work and a thesis. The courses may be selected from engineering, the physical sciences, mathematics, the social sciences, business administration, or other approved disciplines. The specific program is designed by the student and his adviser. At least 20 quarter hours must be selected from graduate level courses in industrial and systems engineering including 561 and 562.

In unusual cases, the student may be permitted to follow a non-thesis option. The minimum requirements for this program are 45 hours of course work including a three credit-hour special investigation requiring independent study and a written report. A written examination will be required of non-thesis candidates. For the non-thesis option, at least 30 quarter hours must be selected from graduate level courses in industrial and systems engineering including 561, 562, and 563.

All resident graduate students are expected to enroll in ISE 630 (Seminar) each quarter of residence. A maximum of two quarter hours credit for seminars may be counted toward graduate requirements.

Applicants with baccalaureate degrees from accredited engineering colleges and other related fields will be considered for admission to the M.S. program in industrial and systems engineering.

*530. Engineering Economy (3)

Economic analysis of engineering projects. Time value of money, cost estimation, equipment comparison, breakeven analysis, economic lot size, and replacement analysis. 3 lec. Prereq: perm. *Overby*

*531. Advanced Engineering Economy (3)

Continuation of 530. Risk explicitly treated by consideration of uncertainties of cost estimates, forecasting, and other economic variables. Construction and use of mathematical models for analysis of engineering alternatives. 3 lec. Prereq: perm.

*532. Inventory and Manufacturing Control (3)

Properties of manufacturing facilities; relationships between production schedules and inventory. Deterministic lot size models, reorder point analyses, and periodic probabilistic inventory models. Production systems with multiple products and/or multiple-component products designed under management, constraints of output rate and quality, inventory maxima and minima, and product schedules. Simulation studies and information flow systems. 3 lec. Prereq: perm. *Scheck*

*533. Industrial Computer Applications (3)

Designing systems for solution of complex industrial problems utilizing digital computers and data processing equipment. User-oriented programs and advanced format techniques. Use of magnetic tapes, library routines, and unit record equipment. 2 lec., 2 lab. Prereq: perm.

*534. Network Analysis and Scheduling (3)

Sequencing and scheduling in job shops, line balancing and scheduling for production lines. Engineering project planning using such techniques as PERT and the critical-path method. 3 lec. Prereq: perm. *Williams*

*535. Quality Control and Reliability (3)

Industrial techniques for process control, acceptance sampling by attributes and by variables, inspection and test methods, and reliability measurement and improvement. Operating characteristics and design of sampling plans. 3 lec. Prereq: perm.

*539. Information Systems Engineering (3)

Design of industrial information systems. Storage, retrieval, and transmission by automatic data processing equipment. 3 lec. Prereq: perm.

*540. Industrial Plant Design I (3)

Design of an industrial plant for manufacturing one or more specific products. Manufac-

turing planning, equipment selection, jig-fixture design, materials handling system, plant layout, production scheduling, inventory control, and cost analysis. 2 lec., 2 lab. Prereq: perm. *Scheck*

***541. Introduction to Operations Research (3)**

Basic methodology of operations research in solution of industrial, engineering, and other problems. Applications and mathematical structure of such topics as inventory models, queuing theory, sequencing, and linear programming. 3 lec. Prereq: perm. *Williams*

***544. Applications of Mathematical Programming (3)**

Linear and non-linear systems techniques for optimum solution of industrial, engineering, or other problems. Assignment problem, transportation problem, simplex method, approximation methods, dual problem, sensitivity analysis, and dynamic programming. 3 lec. Prereq: perm. *Gamble*

***545. Industrial Plant Design II (3)**

Continuation of 540. Design of inventory policies. Fitting mathematical models to production scheduling applications. Design of quality control and scrap control systems. 2 lec., 2 lab. Prereq: perm. *Scheck*

***547. Elements of Behavior Systems Engineering (3)**

Elements of behavior systems analysis, prediction, design, and control. Properties of stimulus-response reflex as a behavior system input-output function. Measures of behavior strength. Elementary applications to engineering and industrial situations such as man-machine systems, crew design problems, organization structure analysis, behavior systems communications. 3 lec. Prereq: perm. *Fink*

***548. Man-Machine Systems (3)**

Man-machine systems design. Role of the human operator as subsystem in complex man-machine system. Optimum design principles for information displays, equipment controls, workplace environments, and life-support systems. Applications to current industrial, aerospace, and weapon systems. 3 lec. Prereq: perm. *Overby*

***549. Behavior Systems Management in Engineering Industry (3)**

Behavior systems analysis applied to engineering organization structure and function with respect to problems of prediction, design, and control of engineering outputs. Job configurations of design and production engineers, technical assistants, project engineering managers,

chief engineers, scientific and research staff, and engineering administrators. Relations among engineering job levels. Applications and examples drawn from existing engineering industry situations. 3 lec. Prereq: perm. *Fink*

555. Synthetic Behavior Systems (3)

Application of principles of bio-behavior systems analysis to design of physical behavior systems: an introduction to robotics. Elements and principles of bio-behavior systems including input-output transfer functions and behavior design principles. Applications for design of physical behavior systems, i.e., synthetic behavior systems. Analysis and design for synthetic system problem with application to engineering industry. 3 lec. Prereq: perm. *Fink*

556. Creativity in Engineering Problem-Solving (3)

Behavior systems analysis used to generate an analytic-descriptive approach to creative problem-solving. Improvement of creative performance applied to industrial and systems engineering problems. Individual projects. 3 lec. Prereq: perm. *Fink*

557. Engineering Decision Processes: Behavior Systems Analysis (3)

Engineering decision processes with reference to elements and principles of behavior systems engineering. Examples drawn from engineering industry. 3 lec. Prereq: perm. *Fink*

559. Individual Research Problems in Behavior Systems Engineering (3)

Design and conduct of selected, original research problem. Prereq: perm. *Fink*

561. Operations Research I (3)

Methodology of operations research. Problem definition, measures of effectiveness, model design, and implementation of problem solution. Relationships between model solutions and "real-world" solutions. 3 lec. Prereq: perm. *Williams*

562. Operations Research II (3)

Advanced models in queuing theory, game theory, replacement analyses, sequencing, markov processes, Monte Carlo technique, and inventory analysis. 3 lec. Prereq: perm. *Williams*

563. Operations Research III (3)

Term project(s) with lectures to provide depth in a particular area of operations research. Analysis of a problem from industry or government. 3 lec. Prereq: perm. *Williams*

564. Reliability in Design (3)

Application of reliability theory to equipment or facilities design. Design of testing systems and procedures for effective reliability measurement and prediction. Analysis of over-all system reliability as function of component reliability. 3 lec. Prereq: perm.

565. Information Systems Design (3)

Design and control of information flow in organizations. Information storage and retrieval by data processing equipment. Students practice design of information systems in laboratory. 3 lec. Prereq: perm.

567. Environmental Systems Engineering (3)

Overview with detailed analysis and design consideration of selected environmental systems. Problems selected from area of energy sources and energy conversion, materials science and engineering, resource engineering, computers and control, communication, bioengineering, engineering of large systems, space engineering, engineering of large structures, and engineering of community systems. 3 lec. Prereq: perm.

589. Special Investigations (1-6)

Prereq: perm.

590. Advanced Problems in Computer Application (1-6)

Special investigations of advanced systems and industrial engineering problems involving use of digital or analog computers. Prereq: perm.

630. Seminar in Industrial and Systems Engineering (1)

Current topics and new developments in industrial and systems engineering. (*Required of all industrial and engineering graduate students each quarter. No more than two credit hours may be counted toward graduation requirements.*) 2 lec. Prereq: perm.

640. Advanced Topics in Industrial and Systems Engineering (1-6)

Readings and lectures. Prereq: perm.

681. Research (1-12)

Prereq: perm.

695. Thesis (as recommended by dept.)**MECHANICAL ENGINEERING**

Adams (chairman and graduate committee chairman), Black, Beale, Chen, Hicks.

In mechanical engineering the Master of Science degree is offered in the fields of mechanical design and thermodynamics. Courses

for the minor are usually in other areas such as mathematics, physics, or an engineering area other than the major area.

The program should total 45 quarter hours including a special investigation project or 33 quarter hours plus thesis. The major field should include in the former case 27 quarter hours and approximately 20 quarter hours in the latter case. The minor field makes up the remainder of the program.

504. Mechanical Design (3)

Application of established logical methods and approaches used to technically define engineering problems and appropriate steps needed to achieve satisfactory functional solutions. Engineering materials, design of machine elements, dynamics of machines, vibrations, heat transfer, fluid dynamics, thermodynamics, electrical circuits, electronics, etc. Creative aspects of design. 3 lec. Prereq: perm. *Sweeney*

510. Advanced Vibration Analysis (3)

Vibration systems and applications to mechanical and structural design. Lumped parameter systems (of two degrees-of-freedom and greater), matrix-analysis techniques, continuous systems such as beams and plates. 3 lec. Prereq: perm. *Adams*

***512. Heat Transfer I (3)**

Conduction and radiation, steady state and transient conditions, multi-dimensional problems, radiation. 3 lec. (*Not open to graduate students in M.E.*)

***513. Heat Transfer II (3)**

Conduction, convection, and radiation, steady-state and transient conditions, film coefficients, dimensional analysis, and heat exchanger design. 3 lec. Prereq: perm. *Hicks*

514. Advanced Heat Transfer (3)

Analysis in conduction and convection heat transfer; hydrodynamic and thermal boundary layers in forced and free convection. 3 lec. Prereq: C.E. 546 or perm. *Hicks*

***523. Thermodynamic Analysis (3)**

Gas and vapor power cycles including reheat and/or regeneration. Fluid flow in rotating machines; effectiveness and availability; refrigeration cycles. 3 lec. Prereq: perm. *Hicks*

***524. Gas Dynamics I (3)**

One-dimensional gas dynamics — isentropic flow, flow with heat transfer, friction, shocks, generalized one-dimensional flow. Applications to propulsion systems. 3 lec. (*Not open to graduate students in M.E.*) Prereq: perm. *Beale*

***525. Gas Dynamics II (3)**

One-dimensional gas dynamics — isentropic flow, flow with heat transfer, friction, shocks, generalized one-dimensional flow. Applications to propulsion systems. 3 lec. Prereq: perm. *Beale*

***584. Problems in Thermal Machinery I (3)**

Reading and laboratory work on current problems. Student may elect either 2 or 3 quarter sequence. 3 lec. Prereq: perm. *Beale*

***585. Problems in Thermal Machinery II (3)**

Reading and laboratory work on current problems. Student may elect either 2 or 3 quarter sequence. 3 lec. Prereq: perm. *Beale*

***586. Problems in Thermal Machinery III (3)**

Reading and laboratory work on current problems. Student may elect either 2 or 3 quarter sequence. 3 lec. Prereq: perm. *Beale*

***588. Engineering and Technological Development (3)**

Origin and evolution of engineering as related to technological progress within our society. Certain social, economic, and political aspects as they influence rate of technical development. 3 lec. Prereq: perm. *Sweeney*

***589. Special Investigations (1-6)**

Prereq: perm.

***591. Mechanical Vibrations I (3)**

Characteristic phenomena of mechanical vibrations encountered in machines and structures (of one degree of freedom) in their quantitative investigation. Simple-harmonic motion; free, transient, and forced vibrations; application of phase-plane methods; damping effects; electrical analogies; principles of isolation; analog computation. 2 lec., 2 lab. (*Not open to graduate students in M.E.*) Prereq: perm. *Adams*

***592. Mechanical Vibrations II (3)**

Laplace transform and mobility methods; systems of several degrees of freedom; analog computation. 2 lec., 2 lab. Prereq: 591. *Adams*

***593. Lubrication and Bearing Analysis (3)**

Development of concepts of hydrostatic and hydrodynamic lubrication and their application to different bearing geometries; boundary lubrication; bearing materials and methods of lubrication. 3 lec. Prereq: perm. *Sweeney*

***594. Advanced Machine Design (3)**

Advanced considerations in design and analysis of machine members including residual stresses and fatigue in metals, stress propagation, and creep. 3 lec. Prereq: perm. *Black*

***595. Advanced Thermodynamics (3)**

Kinetic theory, classical, and quantum statistical mechanics with applications to engineering devices. 3 lec. Prereq: perm. *Hicks*

681. Research (1-6)

Prereq: perm.

695. Thesis (as recommended by dept.)**ENGLISH****ENGLISH LANGUAGE AND LITERATURE****LINGUISTICS****ENGLISH LANGUAGE AND LITERATURE**

Bottorff, Butterworth, Dakin, Fieler (graduate committee chairman), Fitch, Flannagan, Hartman, Heidtman, Holmes, Johansson, Jones, Kendall, Keyes, King, Knies, Madden, Marks, Matthews, McDonnell, Mitchell, Park, Purdum, Ramsey, Roe, Rogers, Schmidt, D. Schneider, G. Schneider, Schulte, Sinclair, Stone, Summers, Swardson, Thayer, E. Thompson, J. Thompson, Udell, Wells (chairman), Whan.

The Department of English Language and Literature offers graduate courses in the areas of English and American literature, the English language, linguistics, creative writing, and comparative literature. Programs leading to the degrees of Master of Arts in English and Doctor of Philosophy in English are available in each of these areas.

The Master's Degree

Programs are offered leading to the Master of Arts degree in English in the areas of English and American literature, English language, and creative writing.

Admission

Application must be made to the Graduate College. The applicant should present at least 27 quarter hours (18 semester hours) of superior work on the undergraduate level in English language and literature and submit evidence of having completed at least two years of college work in a foreign language. Applicants who have not had two years of a foreign language, but who otherwise have outstanding qualifications for graduate study, may apply. Applications for admission will also be considered from students who have had extensive training in academic fields closely related to English. All applicants should arrange for letters of recommendation from three professors with whom they studied on

the undergraduate level to be sent to the chairman of the graduate committee in English.

All applicants for admission, particularly those applying for financial aid, should take the Graduate Record Examination (including the advanced test in literature) and submit their scores. If a student is admitted to one of the master's programs without having taken the GRE, he must take this test the first time it is offered at Ohio University after he has enrolled.

Applicants for the creative writing program must also submit manuscripts or off-prints representative of their work to the director of the creative writing program.

General Requirements

All master's programs require the following:

Minimum Hours of Graduate Credit

The Master of Arts degree requires a minimum of 45 quarter hours of credit. Of these, not more than six hours in Eng. 591 will be counted. A graduate student with no regular teaching responsibilities can accumulate 45 hours credit in three quarters of full-time study.

Foreign Language

A reading knowledge of one foreign language is required for the master's. Any candidate who has successfully completed the first two years of a foreign language (approved by the department) at the college level will be considered to have satisfied the foreign language requirement. Any candidate who cannot so satisfy the requirement must demonstrate his ability to read a foreign language (approved by his advisor) by passing either a departmental reading examination in that language or two quarters of the graduate reading course in that language. The reading course carries no credit toward graduation.

Teaching

Each candidate must enroll in Eng. 591 and will be required to do some teaching under supervision, the specific amount to be determined by his past experience and his needs as they are assessed by his graduate advisor.

Programs

English and American Literature

This program emphasizes the historical-critical study of English and American literature. The normal course of study will include a three-quarter proseminar sequence and 33 hours of additional course work. A student may choose to write a thesis instead of taking a proseminar sequence. Courses will be select-

ed so that a student's program of study will cover all broad areas of English and American literature.

Students who intend to go on to the Ph.D. are strongly advised to take Eng. 593 as early as possible in their graduate study.

Early in his third quarter of graduate study the candidate must pass a written major examination focused on three works (a poem or group of poems, a novel, a play, a work of criticism, or some other significant literary production).

Creative Writing

This program differs from the preceding historical-critical program in that the student substitutes three creative writing seminars (Eng. 693, 694, and 695) for 12 hours of literature courses and presents in lieu of a thesis a book-length manuscript worthy of publication.

English Language

This program is intended for those students who wish to concentrate in English language with a literary emphasis. (Those students who wish to specialize in the English language from a strictly technical viewpoint should follow one of the linguistics programs.) Students in this program will meet the following requirements:

A minimum of three linguistics courses.

Four courses in literature distributed so as to include Eng. 502, a course in Middle English literature, and two courses in one literary period (which may include the medieval period).

Four courses in the history and structure of English language, including Eng. 501 (a, b, c), Eng. 503, and the proseminar in the English language.

A comprehensive examination which covers the history and structure of the English language, the techniques of modern synchronic and diachronic linguistics, and one period of literature.

Individual programs to meet these requirements will be planned with the student's advisor.

Doctoral Degree

Programs are offered leading to the Doctor of Philosophy degree in English and American literature, English language, and in English with concentration in comparative literature. Doctoral study is divided into two phases: the doctoral applicancy and the doctoral candidacy.

Admission

After receiving the master's degree, the student may apply to the graduate committee of the department for admission to advanced

graduate study. His application will be considered in light of (1) his academic performance in his master's program, particularly in his proseminar or on his thesis; (2) his performance on the major examination; (3) the recommendation of his major professor or professors; (4) the evidence he has given of becoming a successful teacher of English.

The student who has taken his master's degree at a school other than Ohio University and desires to be admitted to one of the doctoral programs must apply for admission to the Graduate College. In addition to official transcripts showing his total undergraduate and graduate academic record, his application for admission must include his scores on the Graduate Record Examination and letters of recommendation from at least three professors with whom he studied in his master's program.

Programs

English and American Literature

This program emphasizes the historical-critical study of English and American literature, permitting a concentration in an area of special interest, the limits of the area to be defined by the student's advisory committee and approved by the graduate committee. Minimum requirements for this program are found in the section below headed Doctoral Applicancy.

English Language

This program will include at least 18 hours of English literature and a concentration in linguistics theory and the English language. Students wishing to enter this program must hold an M.A. in English language or its equivalent. The general requirements are as follows:

Eng. 548 Linguistics Phonetics, and Eng. 602 Syntactic Structures in English;

A three-quarter seminar sequence in one period of British or American literature; and three seminars (one quarter each) in English language and linguistics;

Eng. 607, Eng. 706, Ger. 692, Eng. 505, and Fr. 597 or Fr. 557.

Concentration in Comparative Literature

Students with an M.A. in English may be admitted to this program. Students in this program will designate comparative literature as their area of concentration and will enroll in the three-quarter comparative literature seminar sequence. All must meet their language requirement by studying one language intensively and by taking a graduate minor (at least 12 hours) in the literature of that language. In addition, a sound reading knowledge of a second foreign language is required.

In all other respects, students concentrating in comparative literature will meet the general requirements for the Ph.D. in English.

Doctoral Applicancy

If accepted for advanced graduate study, the student becomes a doctoral applicant. Toward the end of his first year of study as a doctoral applicant, his progress will be reviewed by the English department graduate committee and he will be advised at the time whether he should continue in the program. He will remain an applicant until he has fulfilled the following requirements:

Eng. 501 (a, b, c).

Seminars: Normally the doctoral applicant will take one three-quarter seminar sequence in his area of specialization and one in a related area and will select additional one quarter units from other sequences as recommended by his advisor. Deviations from this pattern will be permitted upon the recommendation of the advisor and with the approval of the graduate committee.

The minor: To fulfill this requirement the student may either (a) take 9 to 12 hours in another department (philosophy, history, modern languages, etc.) or (b) elect a minor in the English language (Eng. 503, and either Eng. 502 or Eng. 504, in addition to Eng. 501 (a, b, c) which is required of all doctoral candidates).

Foreign language requirement: Met by demonstrating either (a) a reading knowledge of two or more foreign languages as determined by the graduate committee upon recommendation of the student's advisory committee, or (b) a comprehensive knowledge of one foreign language and presenting a minor in the literature of that language (at least 12 hours of graduate work). Reading knowledge is demonstrated by examination conducted by the Modern Language Department.

Other course work as called for by his individual program of study. Eng. 593, or its equivalent, is required of each candidate.

An oral and written examination, in depth, over his area of specialization and two related areas as designated by his advisor.

A satisfactory prospectus for his dissertation.

Doctoral Candidacy

In this final phase of his work, the candidate will complete his dissertation. The graduate committee recommends that the dissertation be limited to approximately 150 pages whenever possible.

In lieu of the traditional oral examination the candidate will deliver a 60-minute public lecture on some aspect of his dissertation and will lead a discussion upon his work.

- 501. English Language I (3)**
A historical survey of the sounds, inflections, syntax and vocabulary of Old and Middle English.
- a. Anglo-Saxon (Fall quarter)
 - b. Anglo-Saxon and Early Middle English (Winter quarter)
 - c. Middle English (Spring quarter)
- 502. Old English Poetry (4)**
Translation and criticism of Old English verse. Prereq: 1st and 2nd quarters of 501, or equiv. (Spring quarter, as needed).
- 503. English Language II (3)**
Sounds, inflections, syntax, and vocabulary of English from 1500 to present. Emphasis upon language of Shakespeare. Prereq: 501 or perm. (Spring quarter)
- 504. American English (3)**
Phonology and grammar-syntax of American English from a linguistic point of view. Its historical and geographical development. (Fall quarter)
- 505. Old Norse (4)**
Basic Old Norse grammar with introductory readings. (Offered irregularly, as needed)
- 506. Icelandic Saga (4)**
Readings in Old Icelandic literature in the original language. Prereq: 505. (Offered irregularly, as needed)
- 511. Eighteenth Century Novel (3)**
Development of novel form in 18th century. Defoe through Jane Austen. (Fall quarter)
- 512. Nineteenth Century Novel (3)**
Critical analysis of novels by Dickens, Thackeray, Trollope, the Brontes, Eliot, Meredith, and Hardy. (Winter quarter)
- 524. Shakespeare (3)**
Intensive study in specific critical and historical problems. (Spring quarter)
- 531. Medieval Drama (to 1590) (3)**
English drama from beginnings through Christopher Marlowe. (Fall quarter)
- 532. Renaissance Drama (1590-1642) (3)**
English drama (excluding Shakespeare) from Ben Jonson to closing of theaters. (Winter quarter)
- 533. Restoration and Eighteenth Century Drama (3)**
Forms of English drama from 1660-1775. (Spring quarter)
- 536, 537. History of Criticism (3, 3)**
Critical thought and practice. (Fall, Winter quarters)
- 540, 541, 542. Studies in Comparative Literature (3, 3, 3)**
Close study of literary movements, themes, or genres. A different topic will be offered each quarter, e.g., symbolist and surrealist movement, baroque in Western literature, concept of realism or romanticism, grotesque in literature.
- 569. Studies in Literature (3)**
Advanced study of a period or of some aspect of a period (a movement, a genre, author, etc.) of English or American literature. Designed to supplement undergraduate training and to provide intensified training in areas of concentration. Following areas scheduled regularly:
- a. Medieval
 - b. Age of Chaucer
 - c. 16th Century Non-Dramatic
 - d. 17th Century Non-Dramatic (1600-1660)
 - e. Restoration
 - f. 18th Century
 - g. Romantic
 - h. Victorian
 - i. 20th Century
 - j. American Literature to Civil War
 - k. American Literature, Civil War to World War I
- 591. Problems in Teaching College English (1-2)**
- 593. Bibliography and Methods (2)**
Enumerative bibliography; preparation of manuscripts; introduction to aims and methods of literary scholarship. (Fall quarter)
- 650, 651, 652. Proseminar in Literature (4, 4, 4)**
Three quarter study, research, and writing program. First half consists of comprehensive reading in subject matter area, investigation in nature of literary problems relevant to this area, and selection of problems appropriate to graduate writing. Second half concerned with writing of papers comparable in scope to master's thesis or scholarly papers. (Each quarter)
- 693, 694, 695. Creative Writing Seminar (4, 4, 4)**
Criticism of manuscripts and discussion of problems of form. Prereq: perm. Admission

only in first quarter, except for unusual reason.

696. Thesis (as recommended by dept.)

724. Problems in Shakespeare (4)

Intensive research in specific problems in area of Shakespeare criticism and scholarship. Prereq: Ph.D. applicancy or perm. (Fall quarter)

763. Stylistics (4)

Problems in description and analysis of prose style. Prosodic theory. Literature and its writers. Prereq: Ph.D. applicancy or perm. (Winter quarter)

765. Theory of Literature (4)

Investigations into nature of literature and problems of practical literary criticism. Prereq: Ph.D. applicancy or perm. (Spring quarter)

770-776. Seminar in Literature (4)

Minimum of three one-quarter seminars offered each year in each of seven areas. These seminars form a sequence of independent units. In any particular year, more than three seminars may be offered in same area (e.g., a sequence in early Renaissance and one in late Renaissance or a sequence in Romantic and one in Victorian). From three to six seminars may be offered in an area, depending upon staff and upon student need.

- 770 a,b,c Medieval
- 771 a,b,c Renaissance
- 772 a,b,c Restoration and 18th Century
- 773 a,b,c 19th Century
- 774 a,b,c 20th Century British and American
- 775 a,b,c American Literature
- 776 a,b,c Comparative Literature

Prereq: Ph.D. applicancy or perm.

780. Special Studies Seminar (1-4)

Seminars in individual writers and individual works. Offered when (a) there is student demand and/or (b) widely recognized specialist is on the staff.

781, 782. Research (as recommended by dept.)

Covers the period when student is doing necessary research for prospectus. Also used to cover special research courses—e.g., problems in editing, problems in historical research, etc. Prereq: Ph.D. applicancy or perm.

792. Problems in Teaching College English (1-2)

Prereq: Ph.D. applicancy or perm.

895. Dissertation (as recommended by dept.)

Prereq: Ph.D. candidacy.

LINGUISTICS

The organization and administration of the course offerings and degree programs in linguistics is under the supervision of the graduate committee in English. The nucleus of linguistic theory courses is offered by scholars appointed in the Department of English Language and Literature who hold advanced degrees in structural and general linguistics and in English language. Other courses in the linguistics programs are offered by faculty members in related disciplines—modern languages, psychology, communications, mathematics, sociology, and international studies—who are specialists in a particular area of linguistics.

Master's Degree

Admission

An applicant must meet the general requirements for admission as set forth by the Graduate College.

An applicant will follow the same procedure required of applicants in English (see above).

Although no restrictions are made concerning the applicant's undergraduate major or minor fields, applicants with degrees in English, modern languages, speech, and international area studies are highly encouraged.

Programs

For the master's degree, the student may select for his major study any one of the following fields: applied linguistics, teaching of English as a foreign language, or English linguistics. Candidates, besides meeting the Graduate College requirements for the M.A., also have to meet the program requirements by taking at least two of the master's level proseminars in their area of concentration and by passing a written major examination at the beginning of their third quarter of full-time study.

M.A. in Applied Linguistics

Students may concentrate in a major language (for English see English Linguistics below) or in one of the so-called uncommon languages. Students concentrating in a major language are required to have an undergraduate major in the language selected for concentration, or its equivalent, exclusive of literature courses. They are expected to take courses in the structure and development of the language of concentration and in general linguistics. Students concentrating in an uncommon language who have no preparation in it have to take 24 hours in the language of concentration. The M.A. major examination

will include the following areas: (a) the structure of the language selected for concentration and (b) general linguistics.

M.A. in the Teaching of English as a Foreign Language

Students will concentrate in the teaching of English as a foreign language and in the structure of modern English and in general linguistics. Teachers of English who are not native speakers of English and have weaknesses in their spoken and written English are encouraged to take Eng. 562, Eng. 563, and Eng. 564, before taking courses in the structure of English. The M.A. major examination will include the following areas: (a) the teaching of the English language to speakers of other languages, (b) the structure of English, and (c) general linguistics.

M.A. in English Linguistics

Students will concentrate in English language and linguistics, taking at least four courses in linguistics theory and five courses in the English language. The M.A. major examination will include each of three areas: (a) general linguistics theories and techniques, (b) the structure of English, and (c) history of the English language.

Doctoral Degree

Students who have successfully completed the M.A. program in English language or English linguistics or the equivalent, may, upon the recommendation of the graduate committee, apply for admission to the Ph.D. program in English linguistics. In addition to fulfilling the general Ph.D. requirements (see Doctoral Applicancy above), students in this program are expected to attend one session of the Linguistics Institute of the Linguistics Society of America. All students in this program will be expected to present an *outside* minor—9 to 12 graduate hours in another department.

Applicants in this program will take three doctoral level seminars in linguistics or English language, one of which will be 703. In addition, they will elect at least three courses in historical and comparative linguistics and three courses from among such courses as Computational Linguistics, Language and Culture, Mathematics for Linguists, Modern English Dialect, Syntax, Generative Phonology, Formal Stylistics and Dialectology. The comprehensive examination will cover (a) the history and structure of the English language and (b) theories and techniques of linguistics.

545. Introduction to General Linguistics (3)
(Fall quarter)

546. Introduction to Generative-Transformational Grammar (4)

Basic concepts and formalism of generative-transformational grammar. Prereq: 545. (Winter quarter)

547. Introduction to Area Linguistics (3)

Structures of languages and groups of languages such as African, Polynesian, Southeast Asian, etc. Prereq: 545 (Fall quarter)

548. Linguistics Phonetics (4)

General phonetic theory and the phonetic systems of natural languages. Prereq: 552 (Winter quarter)

549. Computational Linguistics (3)

Application of computers to linguistic research. Prereq: perm. (Fall quarter)

550. Language and Culture (3)

Social and cultural functions of language. Prereq: 545 (Winter quarter)

552. Articulatory Phonetics (4)

Perception and articulation training in phonetics of languages of the world. (Fall quarter)

553. Applied Linguistics, Elementary I (4)

Intensive oral study of an uncommon language such as Arabic, Hausa, Malay, Modern Greek, Serbo-Croatian, Swahili, Vietnamese, Yoruba, etc. (Fall quarter)

554. Applied Linguistics, Elementary II (4)

Intensive oral study of an uncommon language such as Arabic, Hausa, Malay, Modern Greek, Serbo-Croatian, Swahili, Vietnamese, Yoruba, etc. Prereq: 553 or equiv. (Winter quarter)

555. Applied Linguistics, Elementary III (4)

Intensive oral study of an uncommon language such as Arabic, Hausa, Malay, Modern Greek, Serbo-Croatian, Swahili, Vietnamese, Yoruba, etc. Prereq: 554 or equiv. (Spring quarter)

556. Applied Linguistics, Intermediate I (4)

Intensive study of spoken and written aspect of an uncommon language. Prereq: 555 or equiv. (Fall quarter)

557. Applied Linguistics, Intermediate II (4)

Intensive study of spoken and written aspect of an uncommon language. Prereq: 556 or equiv. (Winter quarter)

558. Applied Linguistics, Intermediate III (4)

Intensive study of spoken and written aspect of an uncommon language. Prereq: 557 or equiv. (Spring quarter)

559. **Procedures in Teaching English as a Foreign Language (5)**
Supervised practice in teaching English as a foreign language. (Fall quarter)
560. **Materials for Teaching English as a Foreign Language (4)**
Survey of pertinent literature. (Winter quarter)
561. **Contrastive Analysis of English (4)**
Comparison of structure of English with that of some other language. (Spring quarter)
562. **Advanced English Grammar (3)**
Review of English grammar for foreign teachers of English. (Spring quarter)
563. **Advanced English Composition (3)**
English composition course for foreign teachers of English. (Winter quarter)
564. **English Phonetics (3)**
Speech sounds of English with special attention to articulatory training for foreign teachers of English. (Fall quarter)
600. **Studies in Linguistics (1-4)**
Directed reading and research in linguistics. (Each quarter)
601. **Modern English Dialects (4)**
Geographical distribution of American and Commonwealth English dialect features. (Winter quarter)
602. **Syntactic Structures in English (4)**
English sentence structure. (Spring quarter)
603. **Phonological Structures in English (4)**
Sound system of English. (Winter quarter)
604. **Syntax (5)**
Literature on syntactic description. Analysis of selected linguistic data. Prereq: 546 (Spring quarter)
605. **Field Work I (3)**
Techniques for collection and organization of language data. Prereq: 552 (Winter quarter)
606. **Field Work II (3)**
Techniques for formulation of grammars. Prereq: 605 (Spring quarter)
607. **Historical Linguistics (4)**
Techniques and development of historical linguistics. Prereq: 545 (Spring quarter)
608. **Generative Phonology (4)**
Study of pertinent literature. Prereq: 546-548. (Fall quarter)
609. **Proseminar in English Language (4)**
Research in structure and development of English language. Prereq: perm. (Spring quarter)
610. **Proseminar in Teaching English as a Foreign Language (4)**
Research in teaching of English as a foreign language. Prereq: perm. (Spring quarter)
611. **Proseminar in Applied Linguistics (4)**
Research in selected topics in applied linguistics. Prereq: perm. (Fall quarter)
612. **Proseminar in Linguistics (4)**
Research in selected topic of linguistic theory. Prereq: perm. (Spring quarter)
613. **Linguistics Colloquium (1-2)**
Papers of special linguistic interest by faculty, students, and guest speakers (Fall, Winter, Spring quarters)
695. **Thesis (as recommended by dept.)**
700. **History of Linguistics (4)**
Development of linguistic thought.
701. **Formal Stylistics (4)**
Research on selected topics in formal characterization of texts.
702. **Dialectology (4)**
Research on theoretical and historical bases of dialect study.
703. **Seminar in English Language (5)**
Research into selected problems of structure and development of English language.
704. **Seminar in Phonology (5)**
Research on selected topics in phonological theory.
705. **Seminar in Syntax (5)**
Research on selected topics in syntactic theory.
706. **Seminar in Comparative Linguistics (5)**
Research in Indo-European language group with concentration on particular language families.
707. **Seminar in Area Linguistics (5)**
Structures of languages of a given area such as Africa, Polynesia, Southeast Asia, etc.
708. **Readings in Linguistics (2-5)**
Directed readings for advanced students.
709. **Structural Semantics (4)**
Survey of literature on linguistic semantics. Research on nature of semantic component of generative grammars.

895. Dissertation (as recommended by the dept.)

FAMILY LIFE

(See Home Economics)

FINANCE

(Minor only)

Blythe (chairman), Etter, Freund, Patterson.

To begin a minor in finance for degrees other than the Master of Business Administration, only the completion of basic courses satisfactory to the department is necessary.

500. Business Finance (4)

Financing of business enterprises with emphasis on analytical methods and decision making in financial administration. Prereq: perm.

511. Financial Management (4)

Finance function of business enterprises as viewed by executive responsible for procuring and utilizing funds. Case analyses include special problems in financial planning and control, working capital management, capital allocation, short- and long-term fund raising, dividend policies, and financing expansion and combination. Prereq: perm.

*532. Property and Casualty Insurance (3)

Analysis of principal types of property and casualty insurance policies with respect to protection afforded policyholder, his obligations, and cost of protection. Policies studied include fire and extended coverage, allied lines, business interruption, inland marine, automobile, general liability, theft, and bonds. Subjects of risk, insurance law, and multiple-peril policies also covered.

*536. Life Insurance (3)

Fundamental economics of life insurance. Principles and practices of life insurance including types of contracts, group and industrial insurance, and annuities.

*542. Security Analysis (4)

Problems of selecting securities for various investment purposes: industry structure, volume-price-cost relationships, management, financial position, terms of securities contracts, market price behavior and portfolio construction.

*553. Monetary History of the United States (3)

Correlation of developments in American history with development of monetary institu-

tions, policy, and theory. Evolution of commercial and central banking and relationship to economic activity in history of United States. (Same as Ec. 553)

*563. Capital Allocation (3)

Planning capital outlays, methods for ranking investment proposals, theories of financial structure and cost of capital, and approaches to investment decisions under conditions of uncertainty.

*565. Mathematical Analysis of Financial Decisions (3)

Application of quantitative methods to financial management, with emphasis on systems approach to evaluating proposed financial decisions.

621. Seminar in Financial Management (4)

Analyses of financial problems of the corporation with emphasis on recent theoretical and institutional developments in financial management and implications of financial decisions on economic behavior. Prereq: perm.

641. Seminar in Investments (4)

Emerging theories and techniques of analyzing securities, behavior of securities markets, valuation of investment media and portfolio construction, and management for individuals and institutions. Prereq: perm.

651. Seminar in International Finance and Money Markets

Financing and control of foreign operations and international transactions, portfolio and direct investments abroad, and institutions and instruments of foreign money and capital markets. Prereq: perm.

655. Seminar in Monetary Theory (4)

Theories explaining relationship between money and its value, relations between money and level of economic activity, allocation of funds among alternate uses, and interest level, and behavior of interest rates. Prereq: perm. (Same as Ec. 651)

681. Research in Finance (1-8)

Prereq: perm.

695. Thesis (as recommended by dept.)

Prereq: perm.

FOODS AND NUTRITION

(See Home Economics)

FOREIGN AFFAIRS

The Master of Arts degree in foreign affairs is an inter-disciplinary program designed for students interested in government service, private industry, or further academic work. Courses are selected from the areas of economics, government, history, and sociology.

For admission a student must hold a bachelor's degree from an accredited institution and be accepted by the Center for International Studies.

For the Master of Arts degree a student will be required to complete 56 quarter hours distributed as follows:

Economics	16 hrs.
Government	16 hrs.
History	12 hrs.
Sociology	8 hrs.
†Statistics	4 hrs.
—	56 hrs.

†With the approval of his adviser, a student may substitute additional work in a foreign language, or other relevant tool, for the work in statistics.

Of the 56 hours, at least 12 hours must be in seminars to be selected with the approval of the committee.

Requirements for the degree include demonstrated ability to use a foreign language. The student must pass a major examination.

A thesis is optional. If a candidate chooses to undertake a thesis, a reduction is made in the hours required in seminar.

FRENCH

(See Modern Languages)

FURNISHINGS

(See Home Economics)

GEOGRAPHY AND GEOLOGY

Baker, Berger, Bernard, Fisher (graduate committee chairman), Gardula, Heien, Howard, Korsok (associate chairman), Phelps, Sturgeon (chairman), Wilhelm, Yeats.

Graduate students wishing to major in geology must have completed a minimum equivalent of four quarter hours in each of the following: historical geology, mineralogy (crystallography and mineralogy), petrology, and structural geology, and in addition must

have earned sufficient hours among the following to complete 36 quarter hours in geology: economic geology, glacial geology, geomorphology, paleontology, sedimentation, stratigraphy, and field geology. At least nine quarter hours each of chemistry, physics, and mathematics through analytic geometry and introduction to calculus are also required. Students unable to meet the above requirements will be asked to make up deficiencies without graduate credit. Credit in a recognized field camp is required for a graduate degree.

Graduate students desiring a minor in geography or geology need a minimum of 18 quarter hours in geography or geology, respectively, in approved courses. A major graduate program in geography is not offered.

GEOGRAPHY

*501. Geography of Soviet Union (3)

Physical, cultural, and economic geography of Soviet Union. Prereq: perm. (Spring quarter) *Korsok*

*505. Geography of South America (3)

Similar treatment as in 501. Prereq: perm. (Fall quarter)

*506. Geography of Middle America (3)

Similar treatment as in 501. Prereq: perm. (Winter quarter)

*508. Geography of Western Europe (3)

Similar treatment as in 501. Prereq: perm. (Fall quarter) *Korsok*

*509. Geography of Eastern Europe (3)

Similar treatment as in 501. Prereq: perm. (Winter quarter) *Korsok*

*512. Geography of South and East Asia and Islands (3)

Similar treatment as in 501. Prereq: perm. (Winter quarter)

*513. Geography of Southwest Asia and North Africa (3)

Similar treatment as in 501. Prereq: perm. (Spring quarter) *Berger*

*522. Geography of West Africa (3)

Similar treatment as in 501. Prereq: perm. (Fall and Spring quarters) *Berger*

*523. Geography of East and South Africa (3)

Similar treatment as in 501. Prereq: perm. (Winter quarter) *Bernard*

***560. Principles of Political Geography (3)**
Geographic basis of national power. Physical and cultural influence upon historical development emphasized. Prereq: perm. (Fall quarter) *Berger*

***570. Urban Geography (3)**
Geographic factors in urban areas stressing locational and economic factors. Prereq: perm. (Spring quarter) *Korsok*

***572. Settlement Geography (3)**
Arrangement, pattern, and diagnostic forms of rural settlement. Viewed in terms of cultural and historical antecedents and environmental effect. Prereq: perm. (Spring quarter) *Wilhelm*

***580. Development of Geographic Thought (3)**
History of development of geography as science and philosophy. Prereq: perm. (Spring quarter)

***581. Research Methods in Geography (3)**
Study of research materials, methods of investigation, and presentation of geographic data. Prereq: perm. (Winter quarter)

GEOLOGY

***513. Advanced Sedimentology (2)**
Geochemistry of sediments, resume of optimum sampling, current presentations of sedimentary data. 1 lec., 2 lab. Prereq: perm. (Spring quarter, 1968-69) *Fisher*

515. Pre-Cambrian Geology (3)
Pre-Cambrian stratigraphy and igneous intrusions of North America and major problems involved. 2 lec., 2 lab. Prereq: perm. (Fall quarter, 1967-68) *Phelps*

516. Paleozoic Stratigraphy (4)
Distribution of sediments of Paleozoic age in North America, their types, facies relationships and tectonic controls. 3 lec., 2 lab. Prereq: perm. (Winter quarter, 1968-69) *Howard*

517. Mesozoic and Cenozoic Stratigraphy (5)
Distribution of sediments of Mesozoic and Cenozoic age in North America, their types, facies relationships, and tectonic controls. 4 lec., 2 lab. Prereq: perm. (Spring quarter, 1968-69) *Howard*

528. Physiography of North America (4)
Surface features and related significant geologic factors of North America. Prereq: perm. (Winter quarter, 1968-69) *Baker*

***532. Structural Mineralogy (4)**
Advanced crystallography applied to internal structures, nature of mineral structures and principles of crystal chemistry. 3 lec., 2 lab. Prereq: perm. (Spring quarter, 1967-68) *Heien*

***533. Optical Mineralogy (4)**
Optical characteristics of minerals in polarized light; identification of minerals with petrographic microscope. 2 lec., 4 lab. Prereq: perm. (Fall quarter) *Heien*

535. Clay Mineralogy (3)
Structure, mineralogy, identification and genesis of clay minerals. 2 lec., 2 lab. Prereq: perm. (Fall quarter, 1968-69) *Heien*

***536. Principles of Geochemistry (3)**
Geochemistry applied to various geologic environments, including principles of thermodynamics applied to geologic systems, phase equilibria, solution geochemistry, isotope geochemistry, and radioactive dating. 3 lec. Prereq: perm. (Spring quarter, 1968-69) *Heien*

***537. X-ray Methods (3)**
X-ray diffraction and X-ray crystallography; identification of minerals and analysis of mineral structures by powder method. 2 lec., 2 lab. Prereq: perm. (Winter quarter, 1968-69) *Heien*

***543. Igneous and Metamorphic Petrography (4)**
Petrogenesis of igneous and metamorphic rocks and their description and classification in thin section. 2 lec., 4 lab. Prereq: perm. (Winter quarter, 1967-68) *Heien*

***544. Sedimentary Petrography (3)**
Identification and environmental analyses of sedimentary rocks in thin section and grain mounts. 2 lec., 2 lab. Prereq: perm. (Spring quarter, 1968-69) *Fisher*

551. Advanced Invertebrate Paleontology (4)
Identification and interpretation of stratigraphic significance of selected invertebrate faunas. 2 lec., 4 lab. Prereq: perm. (Spring quarter, 1969-70) *Howard, Sturgeon*

555. Advanced Micropaleontology (3)
Biology, evolutionary trends, and biostratigraphic-paleoenvironmental significance of selected groups of microfossils. 1 lec., 4 lab. Prereq: 554 (Upon demand) *Howard*

563. Principles of Geotectonics (3)
Advanced study of rock structures, mountain building, continental drift, and island arcs. 2 lec., 2 lab., field trips. Prereq: perm. (Fall quarter, 1967-68) *Yeats*

564. Regional Tectonics (3)

Comparison of rock structures in different mountain types of the world. 2 lec., 2 lab. Prereq: 563 (Winter quarter, 1967-68) *Yeats*

***571. Economic Geology—Metals (3)**

Metallic mineral deposition; major ore deposits of the world. 2 lec., 2 lab. Prereq: perm. (Fall quarter, 1968-69) *Phelps*

***572. Ore Deposits (3)**

Texture, paragenesis, and origin of metallic ores in polished sections. 2 lec., 2 lab. Prereq: perm. (Winter quarter, 1968-69) *Phelps*

***573. Economic Geology—Non-Metals (3)**

Non-metallic mineral deposition; non-metallic and coal deposits of the world. 2 lec., 2 lab., field trips. Prereq: perm. (Spring quarter, 1967-68) *Fisher*

***574. Petroleum Geology (4)**

Origin, migration and accumulation of petroleum and survey of major oil basins of the world. 3 lec., 2 lab. Prereq: perm. (Fall quarter, 1967-68) *Fisher*

***575. Subsurface Methods (4)**

Drilling practices, electric and radioactivity logging, and geophysical methods of subsurface exploration for petroleum, metals, and water supplies. 3 lec., 2 lab. Prereq: perm. (Winter quarter, 1967-68) *Fisher*

***576. Hydrogeology (5)**

Principles governing occurrence, movement, and recovery of water. Emphasis on ground water. 4 lec., 2 lab. Prereq: perm. (Spring quarter, 1968-69) *Baker*

***585. Geologic Field Reconnaissance (2-3)**

Vacation period geologic field trips to selected areas in North America with pertinent conferences, readings, and reports. Arr. Prereq: perm. (Winter quarter)

681. Advanced Seminar in Geology (1-2, max. 6)

Intensive study of selected geologic topics by special groups. (Several seminars may be held concurrently.) Prereq: perm.

693. Research in Geology (1-3, max. 6)

Prereq: perm.

695. Thesis (as recommended by dept.)**GOVERNMENT**

Bald (graduate committee chairman), Barnes, Beckwith, Bromall, Collins, Connolly, Eagle, Elsbree (chairman), Gusteson, Kim, Prisley, Tucker, van der Veur, Weisfelder, Williams.

To begin graduate work with government as a major, a minimum of 24 quarter hours in government, or its equivalent, is required.

To begin a graduate minor in government, a minimum of nine quarter hours in government, or its equivalent, is required.

***501, 502. American Constitutional Law (3, 3)**

Principles underlying American constitutional government. Consideration of leading cases with reference to interpretation of the Constitution of the United States. (Fall and Winter quarters) *Gusteson*

***505. American Political Parties (3)**

Origin, growth, organization and methods of parties. Suffrage, nominations, and elections. Role of parties in a democracy. (Fall quarter) *Gusteson*

***508. Legislatures and the Legislative Processes (5)**

Major problems of representative governments with respect to legislative assemblies. Structure, organization, and procedures. Interrelationship of legislatures with other forces in society. (Winter quarter) *Eagle*

***509. Law Enforcement (5)**

Role, function, and problems of American judicial, prosecutory, policing, and correctional systems in the political process. Relationship of law and social organization. (Fall quarter) *Bromall*

***511. Public Administration (4)**

Development of administrative organizations, current ideas in organizational theory, nature of federal bureaucracy, fiscal management, and control of administrative action. (Fall quarter) *Collins*

***512. Public Personnel Administration (3)**

Analysis of philosophy, problems, and procedures of public personnel management. Recruitment, training, and promotion policies, position classification, and employer-employee relations. (Winter quarter) *Collins*

***513A,B. Administrative Law (3, 3)**

Organization, functions, and procedures of selected national regulatory agencies. Principles affecting administrative discretion,

GERMAN

(See Modern Languages)

administrative power over private rights, enforcement and judicial control of administrative decisions. A is prereq. for B. (Winter and Spring quarters) *Collins*

***520. American Foreign Policy (5)**

Problems involved in formulation and execution of foreign policy. Contemporary problems of American policymakers. (Fall and Spring quarters) *Collins*

***532A,B. Government and Politics of the Soviet Union (3, 3)**

Institutions, nature and policies of Soviet system of government. A deals with historical background, ideology and organization; B deals with dynamics of ideology and power and nature of totalitarian systems. Prereq: perm. (Fall and Winter quarters) *Williams*

***533. Soviet Foreign Policy (3)**

Analysis of foreign policies of the U.S.S.R. Historical, ideological, strategic and other influences covered. Relations with bloc countries included. Prereq: perm. (Spring quarter) *Williams*

***538. Government and Politics of Germany (3)**

Analysis of political institutions, processes and forces in contemporary Germany. Prereq: perm. (Fall quarter) *Bald*

***541. Government and Politics of Africa (5)**

Development and structure of modern African states with emphasis on political processes in tropical Africa. (Fall quarter) *Weisfelder*

***545. Government and Politics of Japan (3)**

Political institutions and processes of Japan with emphasis on developments since 1945. Prereq: perm. (Winter quarter) *Elsbree*

***546. Government and Politics of China (3)**

Political institutions and processes, and major political developments in China with emphasis on recent events. Prereq: perm. (Spring quarter) *Elsbree*

***547A,B. Governments and Politics of South-east Asia (3, 3)**

Political institutions, processes and groups in the states of the area. A emphasizes political problems common to the region; B examines individual countries in detail. A is prereq. for B. *van der Veur*

***555. International Law (5)**

International law in interstate relations and in international organization. Prereq: perm. (Fall quarter) *Kim*

***556. International Organization (5)**

Nature, development, structure, and functions of international organizations, with particular emphasis on the United Nations. Prereq: perm. (Spring quarter) *Kim*

***561. New States in World Politics (4)**

Impact of new states on international relations. Particular attention given to problems and foreign policies of new states. Prereq: perm. (Winter quarter) *Weisfelder*

***571. Modern Political Analysis (5)**

Examination of problems of knowledge in social sciences, with particular emphasis on political science. Analysis of major theories or approaches developed in political science recently. Prereq: perm. *Tucker*

***574. Nineteenth Century Political Thought (3)**

Movements in nineteenth century political thought in Europe; liberalism, socialism, irrationalism among the subjects covered. Prereq: perm. (Fall quarter) *Elsbree*

***575. Contemporary Political Theory (5)**

Selected issues in contemporary political theory. Proposals for reform of political system, role of intellectuals in politics, analysis of key political concepts. Prereq: perm. (Spring quarter) *Connolly*

***576A,B. American Political Thought (3, 3)**

A considers origin and development of political ideas from the colonial period through the slave controversy. B begins with Social Darwinism and concludes with contemporary political ideas in America. A is prereq. for B. (Winter and Spring quarters) *Prisley*

***590. Studies in Government (3-5, max. 18)**

Intensive study of special topics in field of government, including American government and politics, comparative government, international relations, political theory and public administration. Prereq: perm.

***591. Seminar in Government (3-5, max. 10)**

Seminar in selected fields of government. Prereq: perm.

***598. Problems in Government (3-5, max. 10)**

Research or directed reading based on student's special interest. Prereq: perm.

610. Seminar in American National Government (5)

Selected topics in American national government. (Required of all graduate majors.)

691. Research in Government (2-5, max. 9)
Prereq: perm.

695. Thesis (as recommended by dept.)

GUIDANCE

(See Education)

HIGHER EDUCATION

(See Education)

HISTORY

Booth, Cady, Chastain, Daniel, Doolen, Doxsee, Gilmore (graduate committee chairman), Gustavson, Hamby, Harvey, Herring, Jordan, Kaldis, Lobdell (chairman), Maltby, McGeoch, Parmer, Rauschenberg, Richter, Smith, Steiner, Stevens, Turner, Whealey, Wheeler.

To undertake graduate work with history as a major, a minimum of 24 semester hours or 36 quarter hours in history at the undergraduate level is required, including basic survey courses in European and American history or their equivalent and at least three semester-length or four quarter-length courses at the junior-senior level.

The M.A. with thesis requires: A major of 18 quarter hours plus a seminar in either United States or modern Europe; a minor of 9 quarter hours in some one area other than the major field; 597A or 597B; additional hours to total 40 quarter hours; an acceptable thesis; proficiency in one foreign language prior to completion of the thesis.

The M.A. without thesis is similar, except that the student must take a second seminar and take additional hours to total 48 quarter hours. No language proficiency is required.

In both programs a major examination covering the major and minor field is given in the student's final quarter of course work.

To begin a graduate minor in history, a minimum of 18 semester hours or 27 quarter hours in history at the undergraduate level is required.

*500A. Colonial America to 1689 (3)

The English background, establishment of settlements, first economies, evolution of political and religious structures. Relations with England, internal conflicts, the Glorious Revolution. *Steiner*

*500B. Colonial America 1689-1763 (3)

Governmental changes, credit and currency, the Great Awakening, cultural developments. Old Colonial System, Anglo-French rivalry, the nature of colonial society, problems of maturing political units. *Steiner*

*500C. Revolutionary Era, 1763-1783 (3)

Causes of American Revolution and struggle for independence. *Stevens*

*501A. Studies in Colonial American History (4)

Literature and source materials in field of Colonial American history. Readings and reports. *Steiner*

*501B. Studies of the Era of the American Revolution (4)

Literature and source materials in field of American Revolution. Readings and reports. *Stevens*

*504A. Founding the American Republic: Confederation to Constitution, 1783 to 1800 (3)

The Confederation, movement for a new government, and framing of the Constitution. Establishment of the government during Washington's and Adams' terms. *Wheeler*

*504B. Founding the American Republic: Jeffersonian Democracy and Rise of Nationalism, 1800 to 1819 (3)

Shaping of America's political, social, and economic institutions. Constitutional development and foreign policy under the exponents of Jeffersonian democracy. Rise of the nationalistic spirit during the War of 1812 and after. *Wheeler*

*504C. Old South (3)

Origins and growth of distinctive social, cultural and ideological patterns in the South. Emphasis on nineteenth century prior to the Civil War. Prereq: perm. *Wheeler*

*505. Studies in the Foundation of the American Republic, 1783-1819 (4)

Literature and source materials in field of early national period of American history. Readings and reports. *Wheeler*

*506A. Sectional Controversy: 1820 to 1836 (3)

Slavery and political controversy, rise of the common man, and problems and implications of Jacksonian democracy. *Stevens*

*506B. Sectional Controversy: 1836 to 1850 (3)

Sectional tensions evolving from political con-

trovery, economic conditions, and territorial expansion and attempts to compose differences during period 1836 to 1850. *Stevens*

***507. Studies of the Era of Sectional Controversy, 1819-1850 (4)**

Literature and source materials of Era of Sectional Controversy, 1819-1850. Readings and reports. *Stevens*

***508A. Foundations of Modern America: Civil War, 1850 to 1865 (3)**

Intensive examination of period 1850 to conclusion of the Civil War, with special reference to those forces making for increased sectionalism in the 1850's. Rise of new political movements and leaders; military engagements; and society and institutions in North and Confederacy during wartime. *Doolen*

***508B. Foundations of Modern America: Reconstruction and New South After 1865 (3)**

United States in years following the Civil War; administrations of Andrew Johnson and Ulysses S. Grant. Reconstruction policies for the South and restoration of home rule in that region. Southern regional development to end of nineteenth century. *Doolen*

***508C. Foundations of Modern America: Gilded Age, 1877 to 1901 (3)**

United States in late nineteenth century with emphasis upon role of agrarian, labor and reform movements in an increasingly industrial and urban society. Role of political parties in the Gilded Age. *Doolen*

***509. Studies in Era of Foundations of Modern America, 1850 to 1900 (4)**

Literature and source materials for period 1850 to 1900 in United States history. Readings and reports. *Doolen*

***510A. United States in Recent Times, 1900 to 1920 (3)**

The Progressive Era, American imperialism, World War I, rejection of Wilsonian liberalism. *Hamby, Lobdell*

***510B. United States in Recent Times, 1920 to 1939 (3)**

Temper and culture of 20's; Republican ascendancy and Democratic revival. Great Depression; F. D. Roosevelt and the New Deal. *Hamby, Lobdell*

***510C. United States in Recent Times, Since 1939 (3)**

Abandonment of isolation; World War II; American politics in later Roosevelt years. Cold War; Truman and the Fair Deal; politics and problems of the fifties and sixties. *Hamby, Lobdell*

***511. Studies in the History of the United States in Recent Times (4)**

Literature and source materials in field of recent United States history. Readings and reports. *Hamby, Lobdell*

***512. History of Industrial Revolution in the United States, 1850 to 1917 (3)**

Origins of factory system; impact of the Civil War. Rise of heavy industry; problems of financing and control; influence of the progressive era. *Daniel*

***514A. Social and Cultural History of the United States, 1607 to 1820 (3)**

Role of minorities, class structure, and religion in forming American society. Development of American painting, architecture, music, literature, education, and science as expressions of Puritanism, the Enlightenment and nationalism. *Daniel*

***514B. Social and Cultural History of the United States, 1820 to 1890 (3)**

Role of minorities, class structure, and religion in forming American society. Development of American painting, architecture, music, literature, education, and science as expressions of Romanticism, Social Darwinism, and Pragmatism. *Daniel*

***514C. Social and Cultural History of the United States, 1890 to Date (3)**

Role of minorities, class structure, and religion in forming American society. Development of American painting, architecture, music, literature, education, and science as expressions of Pragmatism and Existentialism. *Daniel*

***515. Studies in the Social and Cultural History of the United States (4)**

Literature and source materials in field of social and cultural history of the United States. *Daniel*

***516A. History of United States Foreign Relations to 1898 (3)**

United States foreign relations from war for independence to Spanish-American War. Development of traditional policies— isolationism, neutrality, Monroe Doctrine—and emergence of an American approach to foreign policy. *Herring*

***516B. History of United States Foreign Relations, 1898 to 1939 (3)**

American foreign relations from war with Spain to outbreak of World War II. Attempts to adjust traditional policies and attitudes to new conditions produced by changes in world power structure and rise of the United States as a great power. *Herring*

***516C. History of United States Foreign Relations, Since 1939 (3)**

World War II and revolution in American foreign relations, the cold war and containment, search for peace and security in a revolutionary era. *Herring*

***517. Studies in the History of American Foreign Relations (4)**

Literature and source material in field of American foreign relations. Readings and reports. *Herring*

***518A. Westward Movement: from Atlantic Seaboard to the Mississippi (3)**

Expansion from first settlements on Atlantic seaboard to the Mississippi. Explorations, Indian trade, land policies, pioneer life, territorial development and state making. *Stevens*

***518B. Westward Movement: Trans-Mississippi West (3)**

Territorial acquisitions, trails and exploration, Indian affairs, railroads, and types of later frontiers. Influence of the West upon American ideals and institutions. *Stevens*

519A. Graduate Survey of United States History, 1607 to 1823 (3)

For teaching assistants for the undergraduate U.S. history course.

519B. Graduate Survey of United States History, 1828 to 1900 (3)

For teaching assistants for the undergraduate U.S. history course.

519C. Graduate Survey of United States History, Since 1900 (3)

For teaching assistants for the undergraduate U.S. history course.

***520. History of the Middle West (3)**

Development of political, economic, and social institutions; attitudes characteristic of Ohio and the Middle West since 1787. Emphasis on twentieth century community relationships, problems, and forms of behavior. *Smith*

***522A. Spanish America, 1750 to 1825 (3)**

Intensive consideration of colonial response to Bourbon reforms, to crisis of authority in Spain (1795-1810), and institutional adjustments to independence. *Gilmore*

***522B. Spanish America in Nineteenth Century (3)**

Coordinate role of Liberalism, Caudillism, Praetorianism, Caciquism, and Positivism in shaping the development of the Spanish American republics. Attention concentrated on Argentina, Colombia, and Mexico. *Gilmore*

***523. Studies in Latin American History, 1750 to 1870 (4)**

Literature and source material in field of Latin American history, 1750 to 1870. Readings and reports. *Gilmore*

***526A. Recent Latin America: Argentina, Brazil, and Mexico in the Twentieth Century (3)**

Reshaping and modernization of Mexico by revolution. Struggle to convert Argentine and Brazilian regionalisms, divided societies, and resources into modern, urban, integrated nations. *Gilmore*

***526B. Recent Latin America: Andean Nations in the Twentieth Century (3)**

Varied experience of Andean Republics under onset of modernization. *Gilmore*

***527. Studies in Recent Latin American History (4)**

Literature and source materials in field of recent Latin American history. Readings and reports. *Gilmore*

***528A. Ancient Near East (3)**

Ancient civilizations of Fertile Crescent and Nile Valley. Sumerians, Egyptians, Babylonians, Hittites, Hebrews, and Persians. *Richter*

***528B. Ancient Greece (3)**

Greek civilization from Bronze Age to end of Hellenistic Era. Institutions, life, and cultures of Greek city-states. *Richter*

***528C. Ancient Rome (3)**

Roman civilization from earliest beginnings through republic to last centuries of the empire. *Richter*

***534. Middle East Since 1900 (3)**

Political, social, and economic problems and developments in Turkey, Iran, Israel, and the Arab States since the First World War. Institutional structures and ideological orientation. *Doxsee*

***536. North Africa (3)**

Modern history of North Africa focusing on Morocco, Algeria, and Tunisia from 1830 to present. Extension of French control over region, French administrative and economic policies, development of nationalism among the indigenous Muslims, struggle for independence, achievements and failures since independence, and comparisons with Egypt and Nile Valley. *Doxsee*

***541. Studies in African History (4)**

Literature and source materials in field of African history. Readings and reports. *Booth*

***542A. History of South Africa to 1899 (3)**
Ancient man; Bantu migrations; coming of Europeans; conflict between Bantu, Boer and Briton. Rise of Zulus and Wars of Calamity; rise of colonial tensions and origins of the Boer War. *Booth*

***542B. South Africa in Recent Times (3)**
Boer War; Union of South Africa; rise of parties and the Age of the Generals. First World War; industrial and social conflict; Second World War; Election of 1948 and emergence of Afrikaner nationalism. *Booth*

***544A. Southeast Asia, to 1820 (3)**
Southeast Asian peoples, economic life, institutions, and cultures, including borrowings from India and China. Origins, classical period, European commercial impact down to post-Napoleonic period. *Cady, Parmer*

***544B. Southeast Asia: Colonialism to Independence (3)**

Patterns of investment colonialism in 19th century, its effects on Southeast Asian peoples. Emergence of nationalist protests, independence movements, problems of modernization. *Cady, Parmer*

***544C. History of Malaysia (3)**

Political and cultural history of Malaysian or Indonesian peoples from the 8th century A.D. through the mid-twentieth century. Indigenous values and institutions. Modification or displacement by experience with imperialism and modernization. *Parmer*

***545. Studies in History of Southeast Asia (4)**

Literature of Southeast Asian history and culture generally. Developments in 19th and 20th centuries. Themes vary from year to year. Readings and reports. *Cady, Parmer*

***549. Studies in History of East Asia in Modern Times (4)**

Historical literature relating to process of modernization of China and Japan from 1860's to 1960's. Readings and reports. *Jordan*

***551. The Far East in Modern Times (3)**
Manchu China and Tokugawa Japan from early nineteenth century. Opening of China; Meiji Restoration in Japan; failure of China to adjust to external pressures. Manchu collapse; defeat of Japan's effort at hegemony over Eastern Asia; Communist triumph in China. *Cady, Jordan*

***556A. Italian Renaissance (3)**

History of the Renaissance in Italy from rise of Italian city states to invasions of early sixteenth century. *Maltby*

***556B. Northern Renaissance (3)**

Age of Renaissance in Northern Europe, including France, England, Spain, Germany, and the Netherlands. *Maltby*

***556C. Reformation (3)**

Protestant and Catholic Reformations in Europe from 1517 to Peace of Westphalia in 1648. *Maltby*

***558A. Early Modern Europe, 1453 to 1559 (3)**

Main political, economic, and cultural developments. Rise of dynastic states, wars of religion, ideological struggles.

***558B. Early Modern Europe, 1559 to 1648 (3)**

Main political, economic, and cultural developments. Overseas expansion, commercial revolution, rise of absolutism, scientific revolution, and Thirty Years' War.

***558C. Early Modern Europe, 1648 to 1750 (3)**

Main political, economic, and cultural developments. Industrialism and capitalism, absolutism, balance of power, intellectual revolution, and Enlightenment.

***561. Pro-Seminar in French Revolution (4)**

Historical factors as causality, influence of ideology, institutional organization, and role of individual in great social upheaval. *Gustavson*

***562A. Europe 1814 to 1871 (3)**

Europe from the Congress of Vienna through Franco-Prussian War. Growth of Liberalism and Nationalism, revolutions of 1830 and 1848, Industrial Revolution, unification of Italy and Germany, and social and intellectual movements. *McGeoch*

***562B. Europe 1871 to 1914 (3)**

Development of Austria-Hungary, France, Italy, Germany, Great Britain, and Russia including imperialism. Background of First World War, and social and intellectual movements. *McGeoch*

***563. Studies in Nineteenth Century Europe (4)**

Literature and source material in field of nineteenth century Europe. Readings and reports. *McGeoch*

***564A. Europe Between World Wars (3)**

Fascism, communism, and the 20-Year Armistice between 1919 and 1939. *Whealey*

***564B. Contemporary Europe (3)**

Problems of peace and war in Europe since 1939. *Gustavson*

***566A. Modern France in Nineteenth Century (3)**

Nineteenth century socio-political, institutional, and cultural evolution. Revolutionary and authoritarian traditions under monarchy and republic. Role of France as a great power.

***566B. Modern France in Twentieth Century (3)**

Twentieth century France including socio-political, institutional, and cultural evolution. Impact of World Wars on nation and on France as a world power.

***567. Studies in Modern France (4)**

Literature and source material in field of Modern France. Readings and reports.

***568A. Modern Germany in Nineteenth Century (3)**

Germany and Central Europe from age of Napoleon to fall of Bismarck.

***568B. Modern Germany in Twentieth Century (3)**

Germany and Central Europe since advent of Wilhelm II.

***570. History of Eastern Europe (3)**

Historical, cultural, and ethnic background of Eastern Europe; Poland, Czechoslovakia, Hungary, Rumania, Yugoslavia, and Bulgaria. Social, economic and political developments in the twentieth century; communization of the Eastern European states. *Kaldis*

***572A. Balkans in Medieval Period, 330 to 1566 (3)**

Origins and history of Balkan peoples from their appearance in Byzantine Empire to Ottoman conquest of Balkan peninsula. Ethnographic structure of Balkan peoples; organization of medieval Balkan Empires; Ottoman Empire and Christian Europe. *Kaldis*

***572B. Balkans in Early Modern Period, 1566 to 1803 (3)**

Balkan peoples under rule of Ottoman Empire. Ottoman institutions and society; political, social, economic, religious, and cultural developments in sixteenth, seventeenth, and eighteenth centuries. *Kaldis*

***572C. Balkans in Modern Period, 1803 to Present (3)**

Evolution of modern Balkan nationalism and rise of Balkan states. Ottoman dissolution and Balkan revolutionary nationalism; foreign

intervention in the Balkans. Domestic Balkan policy to present and establishment of Communist regimes. *Kaldis*

***574A. History of European Diplomacy, 1814 to 1914 (3)**

Diplomatic history from Congress of Vienna to First World War. Age of Metternich, Italian and German unification, new imperialism, and pre-war alliances and alignments. *McGeoch*

***574B. History of International Diplomacy, 1914 to Present (3)**

International problems of peace and war since World War I. International organization and alliances; adjustment to the collapse of European imperialism. *Whealey*

***576A. Economic History of Europe to 1760 (3)**

European economic development from Middle Age to time of Adam Smith. Medieval background, expansion of Europe, mercantilism, and early growth of capitalism.

***576B. Economic History of Europe, 1760 to 1914 (3)**

Industrial, commercial, agricultural, and financial development in Europe from mechanization of industry to First World War.

***576C. Economic History of Europe since 1914 (3)**

European economic development in war and peace from 1914 to present.

***582A. History of Russia (3)**

Russia from earliest times to 1881. Kievan Russia, Muscovy, emergence of Tsarist Russia. Territorial expansion and role as a great power in Europe and Asia. *Gustavson*

***582B. The Communist Revolution (3)**

Tsarist Russia to Soviet Union, 1881-1924; background for revolution. Bolshevik seizure of power, and consolidation of dictatorship. *Gustavson*

***582C. Soviet Union (3)**

Soviet Union since death of Lenin (1924); internal affairs of Communist regime. *Gustavson*

***590A. Tudor England (3)**

England in sixteenth century. Tudor absolutism, English Reformation, and major cultural and economic developments which were the backdrop to Shakespeare's England.

***590B. Stuart England (3)**

England in seventeenth century. Constitutional crises of Stuart period, Republican experi-

ment under Cromwell, beginnings of the Empire, and major cultural and economic developments.

***592A. United Kingdom in Eighteenth Century (3)**

Political, social, intellectual, cultural, and economic developments of England in years prior to and during American and French Revolutions. *Rauschenberg*

***592B. United Kingdom in Nineteenth Century (3)**

Britain's history in 19th century. Major political, cultural, and economic trends. *Rauschenberg*

***592C. United Kingdom in Twentieth Century (3)**

British history in 20th century. Political, cultural, and economic developments. *Rauschenberg*

***593. Studies in British History since 1714 (4)**

Literature and source material in field of British history since 1714. Readings and reports. *Rauschenberg*

***594A. English Constitutional History to 1688 (3)**

English government from Anglo-Saxon times to Glorious Revolution of 1688. Growth of machinery of monarchy, central administration, courts, and common law. Rise of Parliament, its rivalry with the royal power, and its triumph. *Turner*

***594B. English Constitutional History Since 1688 (3)**

Growth of English Constitution after Glorious Revolution. Union with Scotland and Ireland, emergence of British Empire, creation of cabinet and evolution of political democracy. *Turner*

***596A. British Empire-Commonwealth: Georgian Era (3)**

British Empire from 18th century to Age of Reform. Formulation of colonial policy, growth of empire, and internal development of parts.

***596B. British Empire-Commonwealth: Victorian Era (3)**

British Empire from Age of Reform to World War I. Formulation of colonial policy, growth of empire, and internal development of parts.

***596C. British Empire-Commonwealth: Twentieth Century (3)**

Evolution of Empire into Commonwealth during present century. Factors involved and historical development of its parts.

597A. Representative Historians and Their Writings: American History Emphasis (4)

Typical historians from time of Herodotus. Readings from their masterpieces to illustrate schools of interpretation, philosophies of history and development of historical writing. Noteworthy historians in American history. *Stevens*

597B. Representative Historians and Their Writings: European History Emphasis (4)

Typical historians from time of Herodotus. Readings from their masterpieces to illustrate schools of interpretation, philosophies of history and development of historical writing. Noteworthy historians in European history.

***598. Directed Study and Research (3-5)**

Intensive individual work in research or in systematic reading under supervision of faculty member. Prereq: perm.

599A. Graduate Survey of Western Civilization, 1450 to 1648 (3)

For teaching assistants for undergraduate History of Western Civilization course.

599B. Graduate Survey of Western Civilization, 1648 to 1848 (3)

For teaching assistants for undergraduate History of Western Civilization course.

599C. Graduate Survey of Western Civilization, Since 1848 (3)

For teaching assistants for undergraduate History of Western Civilization course.

606. Seminar in Sectional Controversy Era of United States History, 1819 to 1850 (6)

Presented in two quarter sequence. No credit granted until second quarter study completed. *Stevens*

610. Seminar in Twentieth Century United States History (6)

Presented in two quarter sequence. No credit granted until second quarter study completed. *Hamby, Lobdell*

616. Seminar in History of United States Foreign Relations (6)

Presented in two quarter sequence. No credit granted until second quarter study completed. *Herring*

662. Seminar in Nineteenth Century European History (6)

Presented in two quarter sequence. No credit granted until second quarter study completed. *McGeoch*

664. Seminar in Twentieth Century European History (6)

Presented in two quarter sequence. No credit granted until second quarter study completed.
Whealey

698. Thesis (as recommended by dept.)**HOME ECONOMICS****CHILD DEVELOPMENT AND
FAMILY LIFE****FOODS AND NUTRITION****HOME ECONOMICS EDUCATION****HOUSING, FURNISHINGS, AND
MANAGEMENT****TEXTILES AND CLOTHING****INTERDIVISIONAL PROGRAM**

Bane, Doxsee, Langford, Lewis, Macauley, Nehls, Rogers, Roberts, Sellers (director and graduate committee chairman), Wade, Womble.

A student desiring a master's degree with a major in home economics must have a minimum of 20 quarter hours of undergraduate preparation in the field of home economics in which she wishes to specialize and/or in approved related fields. For a graduate program in home economics education, the student is required to have a minimum of 24 quarter hours distributed among at least three areas of home economics.

A student desiring a graduate minor in home economics must have a minimum of 16 quarter hours of undergraduate preparation in the field of home economics in which she wishes to specialize and/or in approved related fields. Twelve to 18 hours of work in one area of home economics and/or a related field constitute a minor.

All graduate programs in home economics are planned by the student and her adviser, taking into consideration the undergraduate training and the professional goals of the student. Requirements vary, depending upon the type of program selected—(1) with thesis, (2) without thesis, or (3) interdivisional program.

GENERAL HOME ECONOMICS***579. Workshops in Home Economics (2-4, max. 6)**

Special workshops for in-service training of home economics teachers. Areas of study include:

- a. Home Economics Education
- b. Clothing and Textiles

- c. Foods and Nutrition
- d. Child Development
- e. Consumer Education
- f. Home Furnishings
- g. Home Management
- h. Household Equipment
- i. School Lunch Management
- j. Family Life Education

Prereq: teaching experience or perm. (Summer only)

691. Seminar in Home Economics (2-4)

Research and recent developments in any of following areas:

- a. Child Development and Family Life
- b. Foods and Nutrition
- c. Home Economics Education
- d. Housing and Management
- e. Textiles and Clothing
- f. Research

Prereq: approval by chairman of department of area in which work is selected.

692. Research in Home Economics (2-4, max. 8)

Independent investigation in one of the five areas of home economics. Prereq: 20 hrs., perm.

695. Thesis (as recommended by dept.)

Prereq: approval by chairman of department in which work is performed.

696. Home Economics Seminars, Workshops, and Short Courses in International Service (2-4)

Special seminars or workshops for international students or for home economics majors who want to prepare for international service. Discussions, laboratory work, and field trips. Prereq: perm.

- a. World Food Supply and Human Nutrition
- b. Sanitation and Health Problems
- c. Cultural, Religious, and Social Influences on Family Life
- d. Cultural, Religious, and Social Influences on Food Patterns and Nutrition
- e. Working with Low-income and Disadvantaged Families
- f. Home and Community Development, including Home Management
- g. Infant and Child Care Services
- h. Establishing Home Economics Extension and Other Adult Programs in Developing Countries of the World

- i. Curriculum Studies and Evaluation of International Home Economics Programs at the Elementary and Secondary Level.
- j. Curriculum Studies and Evaluation of International Home Economics Programs and Research in Higher Education.

CHILD DEVELOPMENT AND FAMILY LIFE

*562. Readings in Child Development (3)

Basic research, theory writings, current controversies, and trends relevant to growth and behavior of children. Experience in abstracting materials from current sources. Prereq: perm.

*563. Preschool Administration (3)

Various problems in organizing and administering preschools, play groups, and Head Start programs. Field trips. Prereq: perm.

564. Advanced Child Development (3)

Theories and principles of child development as advanced by various disciplines. Field work, including independent project. Prereq: perm.

565. Prenatal and Infant Development (3)

Analysis and interpretation of research relative to patterns of development during prenatal and infancy period. Prereq: 562 or perm.

569. Parent Education (3)

Supervised experience in organizing, formulating, conducting, and evaluating discussion groups, classes, programs and individual conferences for parents and youth leaders. One quarter advanced registration with department of child development and family life required. 2 lec., 2 lab. Prereq: 562 and 570 or perm. (One of above may be taken concurrently.)

*570. Readings in Family Living (3)

Analysis and interpretation of basic research, theory writings, current controversies, and trends relevant to growth and behavior in family living. Experience in abstracting materials from current sources. Prereq: perm.

*571. Family Life Education (3)

Selected fundamental educational problems explored. Examination of various dimensions of teacher's role and critical appraisal of student's professional competency to teach classes in family relations. Field trips to selected family life education programs. Prereq: perm. *Womble*

572. Advanced Family Development (3)

Specific conceptual schemes of major theorists in various areas of home economics relative to broad issues of philosophy and values. Consideration of differential amenability of various areas in procedures to problems of family development. Prereq: 570 or perm. *Womble*

573. Critical Areas of Family Adjustment (3)

Forces having impact upon conventional patterns of family living. Special problems of living together in the family as affected by environment, family composition, relationships, resources, traditions, and practices. Prereq: 570 or perm. *Womble*

574. Introduction to Principles of Family Consulting (3)

Development of operational definitions, theoretical formulations, and illustrations applicable to its uniqueness. Prereq: 573 or perm. *Womble*

665. Studies in Child Development (2-5)

Depth study in selected area of child development. Prereq: 564 or perm.

675. Studies in Family Relationships (2-5)

Depth study in selected area of family relationships. Prereq: 572 or perm.

FOODS AND NUTRITION

*522. Experimental Foods (3)

Factors which affect results obtained from food processes. Experimental work under controlled conditions. 2 lec., 3 lab. Prereq: perm. *Lewis*

*523. Food Product Development (3)

Functions of ingredients, factors affecting quality of food products, taste panels, food preference surveys, elements of food industry. 2 lec., 3 lab. Prereq: perm.

525. Readings in Foods and Nutrition (2-4)

Critical review of current literature with emphasis on modern theory and practice in food preparation and production or nutrition. Prereq: perm.

*528. Advanced Nutrition (4)

Principles of nutrition and evaluation of current research as applied to dietary practices for all age groups. Computation of nutritive values of dietaries. 2 lec., 4 lab. Prereq: perm. *Roberts*

*529. Community Nutrition (3)

Nutrition needs and practices in agencies serving the community such as social welfare,

home economics extension, public health, and school lunch. Nutrition work with low-income families. Some field work. 2 lec., 2 lab. Prereq: perm. *Roberts, Wade*

***530. Diet Therapy (3)**

Application of principles of nutrition in feeding individuals. Use of diet in prevention and treatment of disease. Problems in planning and preparing therapeutic diets. 2 lec., 2 lab. Prereq: perm. *Lewis, Roberts*

***531. Studies in Science of Nutrition (3, max. 6)**

Nutrition as related to physiological and metabolic processes. Review and critical analysis of research in field. 2 lec., 3 lab. Prereq: perm. *Roberts*

***532. Infant and Child Nutrition (3)**

Dietary factors related to nutritional status in pregnancy, infancy, preschool, and school age children. Contribution of nutrition education and school lunch program in school curriculum. 2 lec., 2 lab. Prereq: perm. *Roberts, Wade*

***535. Purchasing and Cost Control (4)**

Production, distribution, and storage of food supplies. Purchase of such commodities for quantity use. Cost control system. Prereq: perm. *Macauley*

***536. Equipment, Maintenance, and Layout (3)**

Food service layout and selection of equipment and furnishings. Materials, construction, installation, operation, care, and relative cost. Prereq: perm. *Macauley*

***537. Organization and Management (3)**

Organization and administration applied to food service operations in public and private institutions. Administration of labor and standards of work. Prereq: perm. *Macauley*

***538. Advanced Food Production Management (2-4)**

Individual studies and laboratory experiences in management of personnel and cost control procedures. Prereq: perm. *Macauley*

624. Advanced Food Science (2-3, max. 6)

Chemical and physical behavior of basic food constituents. Their influence on characteristics and nutritive value of foods. Prereq: perm.

626. Methods of Food and Nutrition Investigation (3, max. 6)

Biological and chemical methods used for analysis of various nutrients and constituents

in foods and biological materials. Nutrition research using human subjects, or food technology. Lab and lec. 6 hrs. Prereq: 531 or 624 and perm.

627. Studies in Foods and Nutrition (2-4, max. 8)

Intensive study of selected topic in foods or nutrition. May include laboratory work. Prereq: 522 or 531 and perm.

HOME ECONOMICS EDUCATION

540. Supervision in Home Economics (3)

Leadership functions, principles, and practices involved in effective supervision in home economics. For those interested in supervising student teachers or in-service programs at local, state, or national level. Prereq: teaching experience in home economics. *Sellers*

***543. Vocational Home Economics (3)**

History and philosophy of vocational home-making education. Contemporary trends, methods, sources of materials, and evaluation. Observation arranged. Prereq: teaching experience in home economics or perm. *Sellers*

***544. Home Economics in Adult Education (3)**

Organization procedures, curriculum materials, and methods of conducting adult education groups in education for family living. Prereq: perm. *Sellers*

***545. Current Developments in Home Economics Education (3)**

Current trends and developments in home economics education programs at secondary and post high school levels in relation to curricular developments, evaluation procedures, legislation affecting program and research. 3 lec. Prereq: perm. *Sellers*

546. Home Economics in Higher Education (3)

Basic philosophy and issues concerning place of home economics in higher education today. General trends in curriculum offering, teaching practices, evaluation, administration, and research. For those interested in teaching home economics at college level. Prereq: perm. *Sellers*

650. Studies in Home Economics Education (2-4, max. 8)

Intensive study of some phase of home economics education. Prereq: teaching experience in home economics, perm.

HOUSING, FURNISHINGS, AND MANAGEMENT

*580. Advanced Home Furnishings (3)

Qualities and styles of furniture and furnishings. Emphasis on periods of past and their esthetic influence on present. Practical projects in decorating and furnishing a home. 2 lec., 1 lab. Prereq: perm. *Langford*

*581. Contemporary Design in Furnishings (3)

Furnishings and interiors of present era; factors that have influenced development of contemporary design; important designers and their work. Prereq: perm. *Langford*

*582. Design in Home Accessories (3)

Esthetic study of development of design in accessories of glass, pottery, oriental rugs, metals such as silver and pewter. Use of accessories in home and in displays. Prereq: perm. *Langford*

*592. Household Equipment Techniques (3)

Critical analysis of home equipment to establish standards of effective use. Emphasis on lighting, water, and cleaning equipment, and kitchen planning. 1 lec., 4 lab. Prereq: perm. *Macaulay*

595. Advanced Home Management (3)

Over-all view of home management. Development of its present principles and concepts considered. Contributions which other disciplines have made which are applicable to home management. Prereq: perm. *Rogers*

*639. Studies in Household Equipment and/or Management (2-4, max. 6)

Provides opportunity for student to pursue study in a selected area of home management and/or household equipment, under supervision. Prereq: perm.

TEXTILES AND CLOTHING

*502. Flat Pattern Design (3)

Flat pattern designing with emphasis on fitting techniques. Use and understanding of commercial patterns. 2 lec., 4 lab. Prereq: perm. *Bane*

*504. Advanced Dress Design (3)

Draping with emphasis on creative design, fitting, and manufacturing problems. 1 lec., 5 lab. Prereq: perm.

*505. History of Costume and Textiles (3)

Costume and textiles through the ages as reflection of historical period and source for present day design. *Doxsee*

*507. Textile and Clothing Industry (3)

Problems confronting buyer of textile products as related to specific manufacturing situations involved. Prereq: perm. *Doxsee*

509. Psychological, Social, and Economic Aspects of Clothing (3)

Contemporary uses and roles of textiles and clothing as affected by economic, social, and psychological forces seen in historic perspective. Prereq: perm. *Doxsee*

512. Advanced Studies in Clothing (2-4)

Advanced problems and techniques in clothing construction. Emphasis on scientific principles of construction and experimental methods and fabrics. 3 lec., 3 lab. Prereq: perm. *Bane*

515. Advanced Studies in Textiles (2-4)

Physical and chemical examination of fibers and fabrics with emphasis on application of testing techniques as applied to individual textile studies. 1 lec., lab. hrs. arranged. Prereq: perm. *Doxsee*

517. Readings in Textiles and/or Clothing (2-4)

Analysis and interpretation of current writings and research with emphasis on new developments and trends. Prereq: perm.

HUMAN RELATIONS

(See Education)

INDUSTRIAL ARTS

Hawlk (graduate committee chairman), Jenkins, Paige, Perry (chairman), Shull, Smith.

A student electing to major in industrial arts shall have completed the minimum certification requirements for teaching industrial arts in Ohio schools, or equivalent, as determined by the departmental graduate committee.

526. History and Philosophy (3)

Historical development of industrial education, including philosophy and people associated with various stages of program evolution. 3 lec. *Hawlk*

527. Current Trends and Developments (3)

Identification and study of new trends apparent in current programs as means of predicting direction for program development. 3 lec.

550. Advanced Work in Technical Areas (3)

Experiences in work toward development of new areas for industrial arts, or extending

existing areas in new directions. May be repeated in different areas for maximum credit of 12 hours. 6 lab.

557. Program Selection and Planning (3)

Planning of industrial arts curriculum for specifically designated schools according to guide from current trends and specific needs of the area. 3 lec.

561. Development of Teaching Aids (3)

Construction of aids planned to improve efficiency of instruction based upon analysis of specific teaching situations. 6 lab. Prereq: teaching experience.

562. Programmed Instruction (5)

Study of existing instructional programming, and development of new programmed materials for industrial arts classes. 2 lec., 6 lab.

571. Administration and Supervision (3)

Analysis of role of supervisor at various levels under conditions of currently developing programs, and development of principles and practices seemingly most effective toward success of the supervisor. 3 lec. *Squibb*

590. Special Problems in Industrial Arts (3-5)

Individual experimentation and research of professional problems. Identification of pertinent problems and planning an effective attack toward potential solution.

681. Research (3-5)

Written report of research conducted, with approval signatures of adviser and one other member of the graduate committee, required. May be repeated with permission for maximum of 10 hours credit. *Perry*

691. Seminar in Industrial Education (3-5, max. 10)

Analysis of current literature and periodicals serves to guide discussion. Term paper in form of article proposed for publication; based upon individual study extending from the seminar.

695. Thesis (as recommended by dept.)

INDUSTRIAL ENGINEERING

(See Engineering)

INTERPERSONAL COMMUNICATION

(See Communication)

ITALIAN

(See Modern Languages)

JOURNALISM

Baird, Click (acting director), Culbertson, Gentry, Izard, Kliesch, Lambert, Sargent (graduate committee chairman), Stempel, Turnbull, Wagner.

The School of Journalism offers graduate work in five sequences: (1) news writing and editing, (2) advertising-management, (3) magazine journalism, (4) public relations, (5) and radio-television news. In addition, students may select course work in communications research and theory.

To begin a graduate major, a student should have a minimum of 18 quarter hours or 12 semester hours of basic journalism courses. Students with less than the required hours are permitted to take one or more undergraduate courses concurrently to correct the deficiency.

To begin a graduate minor in journalism, courses prescribed as prerequisites or approved equivalents are required. These prerequisites usually total 9 to 15 quarter hours.

501. News Media Development and Procedures (2-6)

History and current procedures of mass media, including latest developments in news gathering, writing, editing and graphic presentation. Intended for students without undergraduate journalism majors. Prereq: perm. *Baird, Izard, Wagner*

*511. Newspaper and Communications Law (3)

Principles and case studies of law of the press. Constitutional guarantees, libel, contempt, privacy, copyright, privilege, and administrative controls. Regulations pertaining to radio and television. Prereq: perm. *Sargent, Stempel*

*521. Graphic Production Processes (5)

Processes for reproducing printed word and pictures. Latest developments in each process as they affect editing, advertising, and public relations. Theory and laboratory work. Prereq: perm. *Turnbull*

*522. Advertising Production (3)

Mechanical, graphic, and creative methods of advertising production; comparative analysis of printing processes; relation of color, art work, type, media, and quality of paper to advertising purpose. Prereq: perm. *Turnbull*

***531. Industrial and Business Magazines (3)**
Industrial, business, and institutional publications. Contents, purposes, and readership of such publications; copy preparation and make-up. Staff, costs, printing, and circulation are considered. Prereq: perm. *Baird, Click*

***550. Copy Writing (3)**

Essentials of copy; study of current theory and analysis of tested examples. Constructive work required. Prereq: perm. *Turnbull*

***564. Reporting of Public Affairs (3)**

Governmental, civic, and business organizations; courts, legal procedure, city and county government, state and national organizations, banks, political parties, and community activities. Prereq: perm. *Wagner*

***565. Editorial Page (3)**

Editorial page in opinion formation; dealing with problems of content selection and presentation. Writing of analytical and persuasive editorials and interpretive articles. Prereq: perm. *Gentry*

***566. International Communications (5)**

Development and operations of mass communications channels and agencies by which news is gathered and disseminated throughout the world. Comparative analysis of media practices and flow of news among various major countries. Relation of communication practices to international policies and programs. Prereq: perm. *Kliesch*

***571. Public Relations Principles (5)**

Fundamental public relations functions. Polling, publicity writing, and preparation of literature of business organizations—house organs, reports, pamphlets, advertisements, leaflets, manuals, and letters. Prereq: perm. *Culbertson*

***572. Advanced Public Relations (4)**

Advanced public relations problems, policies, and practices of various institutions and organizations in modern society. Public relations program development. Prereq: perm. *Culbertson*

***581. Newspaper Management (3)**

Problems and economics of publishing. Policy making as it affects all departments of newspaper plant. Prereq: perm. *Turnbull*

***582. Radio-Television Advertising and Management (4)**

Business principles and practices in broadcasting industry. Problems in radio and television station operation; time sales. Prereq: perm. *Turnbull*

590. Research Methods (5)

Statistical inference from samples, data collection and processing, and design of experiments. Techniques for study of communications content, message sources, audiences, and effects. *Culbertson, Sargent, Stempel*

603. Seminar in Theory of Mass Communications (5)

Communication process, interpersonal and mediated, and possible barriers to effectiveness. Review of literature on effects of mass communication on individuals and groups, contrasting channels and message structures. Media as social and economic institutions. Prereq: perm. *Gentry*

611. Seminar in History of Journalism (5)

Significant individuals, agencies, and developments in history of American journalism. Research in historical bibliography in field of journalism; individual projects and readings; application of historiographic methods. Prereq: perm. *Baird, Kliesch*

612. Government and Mass Communications (4)

Communications and political order. Theory and structure of democratic and totalitarian communications systems, relationships between government and mass communications in modern world. Prereq: perm. *Sargent, Stempel*

614. Literature of Journalism (4)

Directed reading and discussion of outstanding professional literature in field of journalism. Prereq: perm. *Gentry, Stempel*

615. Seminar in Theory of Freedom of the Press (4)

Historical and philosophical development of concept of free expression and its relationship to development of the Anglo-American system of information flow. Contrasting ideologies and their evolution. Implications of these theories in contemporary states. Prereq: 511 or perm. *Gentry*

***641. Feature and Magazine Writing (3)**

Newspaper, magazine, and pictorial features. Practice in writing and marketing of various types. Finding subjects, securing photographs, writing articles, and surveying markets. Prereq: perm. *Baird, Sargent*

***642. Advanced Feature and Magazine Writing (3)**

Students permitted wide range in selecting feature subjects. High-grade writing is stressed. Prereq: perm. *Gentry, Kliesch*

***655. Seminar in Broadcast News (3)**

Problems—operational, social, legal, and ethical—faced by broadcasters covering today's news. Prereq: perm. *Wagner*

***661. Specialized Journalism (4)**

Training in special fields—science, sports, society, politics, military, home economics, agriculture, religious activities, teaching journalism, music, and other approved areas. Prereq: perm. *Click, Kliesch*

***662. Internship (4)**

Conference course open only to students who have completed their internship work with an approved organization. Students submit a comprehensive report involving analysis and problems encountered during summer training. Prereq: perm. and completion of summer internship.

666. Seminar in International Communications (5)

Directed research and reading applied to problems of international communication and comparative foreign journalism. Each student studies the press of selected nations or areas in which he has special interest. Prereq: 566, 603, perm. Reading proficiency in language of area of special interest generally required. *Kliesch*

671. Public Relations Problems and Programs (4)

Overall planning and operation of public relations programs in government, industry, and in educational and non-profit organizations. Analysis and seminar discussion of problems and policies in such institutions. Case method used in conjunction with individual field studies conducted by class members. Prereq: 571, 572, perm.

***684. Supervising School and College Publications (4)**

Conference course for advisers of high school and college newspapers, magazines, and yearbooks. Problems relating to staff selection, content of publications, copy, layout, photography, printing, advertising, and business phases. In summer sessions the publications workshop will be analyzed on a case study basis. Prereq: perm. *Baird*

690. Seminar in Mass Media Research (5)

Students present research ideas to the seminar, discuss progress and problems, report findings, and defend project before group. Prereq: 590. *Stempel*

***691. Research in Journalism and Communications. (3)**

Prereq: perm.

695. Thesis (as recommended by dept.)**LATIN**

(See Classical Languages)

LINGUISTICS

(See English)

MANAGEMENT

(Minor only)

Bolon, Grieco, Hellebrandt, Hersey (chairman), Prasad, Weaver.

To begin a minor in management for degrees other than the Master of Business Administration, completion of a program satisfactory to the department is necessary.

500. Management (4)

Management and organization concepts and theory.

510. Production (3)

Production process, planning, and control.

***511. Advanced Production Problems (3)**

Case studies in industries; designed to apply to all phases of student's training and experience.

***520. Personnel Management Problems (4)**

Case study approach.

***521. Wage and Salary Administration (3)**

Factors determining industrial wage and salary policies, methods of employee payments, wage relationships, wage rate setting, incentive wage plans. Techniques and methods of implementing wage and salary policies. Lab. oriented.

***525. Industrial Relations (4)**

Objectives, establishment, and procedures of collective bargaining; administration of labor contracts; labor-management conflict and co-operation; methods of conciliation, mediation, and arbitration. Case study method.

***530. Information Management (3)**

Analysis of basic data processing activities, rhocrematics, and information flows in business organizations within total-systems framework. Systems analysis, cases, and individual research problems.

***540. Organizational Theory and Behavior (4)**

Decision implementation in organizations; effects on worker motivation and morale; development of harmonious productive relationships through effective communication and leadership. Conceptual framework of psychology, sociology, anthropology, political science and other behavioral disciplines to management and organization.

550. Management Responsibilities in Society (3)*600. Reading in Management (4)**

Prereq: perm.

***640. Organizational Theory and Behavior (4)**

Decision implementation in organizations; effects on worker motivation and morale; development of harmonious productive relationships through effective communication and leadership. Conceptual framework of psychology, sociology, anthropology, political science and other behavioral disciplines to management and organization. Prereq: Ph.D. candidate or perm.

681. Research in Management (4)

Prereq: perm.

691. Seminar in Management (4)

Prereq: perm.

695. Thesis (as recommended by dept.)**MARKETING—ADVERTISING**

(Minor only)

Hewitt, Krauskopf, Muse (chairman), Raymond, Richmond.

To begin a minor in marketing-advertising for degrees other than the Master of Business Administration, only the completion of basic courses satisfactory to the department is necessary.

500. Elements of Marketing (4)

Designed for M.B.A. candidates who have not had marketing.

***541. Seminar in International Marketing (3)**

Problems encountered by firms marketing products on an international scale.

***544. Seminar in Consumer Behavior (4)**

Behavioral science research as it applies to the marketing process.

***550. Seminar in Advertising Copy (3)**

Current theory and applications for effective persuasion in print.

***558. Seminar in Marketing Management (4)**

Case analysis of problems encountered by manufacturer and middleman in marketing consumer goods and industrial products.

***580. Mathematical Methods of Marketing Analysis (3)**

Quantitative techniques used in analysis of marketing problems.

681. Individual Research in Marketing (1-6)**691. Seminar in Marketing Theory (4)**

Theoretical framework of marketing activities and operations.

695. Thesis (as recommended by dept.)**MATHEMATICS**

Anderson, Atalla, Baldwin, Barnett, Bustoz, Butner (graduate committee chairman), Denbow (chairman), Eldridge, Golos, Goodrich, Goedicke, Irwin, Jasper, Lifsey, Lustfield, McInerney, Mehr, Sastry, Shankar, Spring, Wyzalek.

A student may begin a graduate major with 32 quarter hours of undergraduate mathematics, including the equivalent of at least two 400 level courses. Completion of at least nine hours in algebra and completion of at least nine hours in analysis beyond advanced calculus is required of all master's degree candidates for partial fulfillment of degree requirements. Six hours in topology and/or geometry is also required.

***506A-B. Foundations of Mathematics (3-3)**

Axiomatic development of real number system, and other topics. (Sequence starts Winter quarter.)

***507A-B-C. Number Theory (3-3-3)**

Topics in ordinary and algebraic number theory. (Sequence starts Fall quarter.) *Barnett*

***510. Matrix Theory (3)**

Matrix algebra and applications, linear equations, vector spaces and linear transformations. Not open to those who have completed 113B. (Fall quarter)

511A-B. Linear Algebra (3-3)

Vector spaces and linear transformations, characteristic values, quadratic forms, and dual spaces. Prereq: perm. (Sequence starts Winter quarter.) *Eldridge, Spring*

***513A-B-C. Introduction to Modern Algebra (3-3-3)**

Elementary theory of groups, rings, and fields. Prereq: perm. (Sequence starts Fall quarter.)

***519. Topics in Algebra (3)**

When demand is sufficient, course in some phase of algebra offered under this number. Prereq: perm.

***533. Projective Geometry (3)**

(Spring quarter)

***539. Topics in Geometry (3)**

When demand is sufficient, course in some phase of geometry offered under this number. Prereq: perm.

***540. Vector Analysis (3)**

(Fall quarter)

***541. Fourier Analysis and Partial Differential Equations (3)**

(Winter and Spring quarters)

***542. Theory of Linear Programming (3)**

Real linear algebra, solutions of systems of equalities and inequalities. Fundamental theorem of duality and equilibrium theorem, with applications involving simplex method. (Spring quarter)

***544. Numerical Analysis (3)**

Approximate solutions of applied problems. Interpolation theory, curve fitting, approximate integration, and numerical solution of different equations. (Winter quarter)

***546. Computer Numerical Analysis (3)**

Numerical methods for matrix inversion, eigen-values, solutions of partial differential equations, function representation, and simulation. Prereq: perm. (Spring quarter)

547A-B. Special Functions (3-3)

Infinite products, Gamma, Beta, and Zeta functions, asymptotic series, cylindrical functions, spherical functions, orthogonal polynomials, Legendre, Hermite and Laguerre polynomials. Prereq: perm. (Sequence starts Winter quarter.) *McInerney, Jasper*

548. Mathematics for Linguists (4)

Mathematical properties and structures of data sets. Theoretical machines as models for grammars. Prereq: perm. (Spring quarter) *Irwin*

***550A-B-C. Theory of Statistics (3-3-3)**

Probability distributions of one and several variables, sampling theory, estimation of parameters, confidence intervals, analysis of variance, correlation, and testing of statistical hypotheses. (Sequence starts Fall quarter.)

***560A-B-C. Advanced Calculus (3-3-3)**

Critical treatment of limits, continuity, differentiation of functions of one and several variables, series, and theory of integration. (Sequence starts Fall quarter.)

***563A-B. Applied Complex Variables (3-3)**

Analytic and harmonic functions, Cauchy integral and residue theorems, contour integration, Taylor and Laurent expansions, conformality and linear transformations with applications. Not open to mathematics majors. (Fall and Winter quarters)

565A-B-C. Complex Analysis (3-3-3)

Analytic functions, multi-valued analytic functions, power series, complex integration, Cauchy integral theorem, its extensions and consequences. Residue theorem, Taylor and Laurent expansions, max-modulus principle and its generalizations, elementary conformal mapping. Conformal representations, Riemann mapping theorems, analytic continuation, Riemann surfaces, Weierstrass and Mittag-Leffler's factorization theorems, simply periodic functions, simple properties of elliptic functions. Dirichlet problem. Prereq: perm. (Sequence starts fall quarter) *Butner, Shankar*

569. Topics in Analysis (3)

When demand is sufficient, course in some phase of analysis will be offered under this number. Prereq: perm.

570A-B-C. Theory of Functions of Real Variables 3-3-3)

Prereq: perm. (Sequence starts Fall quarter.) *Mehr*

***580. Elementary Point Set Topology (3)**

Introduction to set theory, cardinal and ordinal numbers, general topological spaces and continuity, Homeomorphism, metric spaces. Prereq: perm. (Winter quarter)

581A-B. Point Set Theory (3-3)

Topological spaces, separation axioms, axioms of countability, connectedness, compactness, regularity and normality, convergence theory, completion, product and quotient spaces, metrization and uniform spaces. Prereq: perm. (Sequence starts Spring quarter) *Atalla*

***590. Selected Topics in Mathematics (3)**

When demand is sufficient, course in some phase of mathematics offered under this number. Prereq: perm.

***591. Studies in Mathematics (as recommended by dept.)**

Selected topics in mathematics studied under guidance of instructor particularly interested in the field. Prereq: perm. of chairman

608. Seminar in Algebra (as recommended by dept.)

Prereq: perm.

668. Seminar in Analysis (as recommended by dept.)

Prereq: perm.

698. Seminar (as recommended by dept.)

699. Thesis (as recommended by dept.)

MECHANICAL ENGINEERING

(See Engineering)

MODERN LANGUAGES

FRENCH

GERMAN

ITALIAN

RUSSIAN

SPANISH

Barstad, Bartlow, Bolen, Burns, Cameron (chairman), N. Cannaday, R. Cannaday, Carrier, Conliffe, Danner, Flum, Franks, Frink, Hinkle, Ipacs, Krauss, LaJohn, MacDonald, Nybakken, O'Nan (graduate committee chairman), Previtali, Renkenberger, Richardson, Santaló, Serna-Maytorena, Silver, Spires, Thomas.

To begin a graduate major in a modern foreign language, the student must have completed the requirements for the Bachelor of Arts major or the equivalent in that language.

To begin a graduate minor, the student must have completed a minimum of six hours of undergraduate work in the language at the 300 level or the equivalent.

Both thesis and non-thesis programs are offered for the M.A. degree.

Programs

M.A. with Thesis

1. Reading knowledge of a second modern language or Latin to be shown either by passing 103 with at least a grade of B, making an acceptable score on the ETS Foreign Language Tests, passing the examination given for 503, or by passing a literature course in the foreign language. In lieu of a foreign language, a student may present two courses in linguistics which are to be in addition to the 45 quarter hours required for the M.A.

2. Courses

- a. 24-39 hours of work in the language and literature at the 500 level or above. Included must be two seminars; 551; 597-598-599 or six hours from 539, 541, 557. 24-39 hours
- b. With approval, minor of 9-12 hours in cognate field. 0-12 hours
- c. Thesis and oral thesis examination. 6-9 hours

Total 45 hours

3. Major examination based on course work and reading list.

M.A. without Thesis

1. Reading knowledge of another foreign language as outlined under *M.A. with thesis*.

2. Courses

- a. 33-45 hours of work in the language or literature at the 500 level or above. There must be included three seminars and the presentation of one seminar paper to the graduate committee; 551; 597-598-599 or six hours from 539, 541, 557. 33-45 hours
- b. With approval, a minor of 9-12 hours in cognate field. 0-12 hours

Total 45 hours

3. Major examination based on course work and reading list.

MODERN LANGUAGES

510. Supervised Practice and Research in Language Laboratory (3)

For graduate students in teaching English as a foreign language, modern foreign language graduate assistants, graduate teaching assistants in linguistics, graduate education students, and teachers in secondary schools and colleges. *Richardson*

*545. Teaching of Modern Foreign Languages (3)

Problems confronting students on the level of instruction (elementary school, secondary school, college) at which they teach or plan to teach. *R. Cannaday*

FRENCH

501, 502, 503. French for Graduate Reading Requirement (3, 3, 3)

Preparation for reading knowledge examination required by certain departments for M.A. and Ph.D. degrees. Credit does not count toward degree. *Flum*

*515, 516. French Literature of the Renaissance (3, 3)

Literary subject or trend; reading of literary and critical works. (Fall and Winter quarters, 1968-69) *Nybakken*

*518, 519. French Classicism (3, 3)

Literary subject or trend; reading of literary and critical works. (Winter and Spring quarters, 1968-69) *Silver*

*523, 524. Eighteenth Century (3, 3)

Literary subject or trend; reading of literary and critical works. (Fall and Winter quarters, 1967-68 and 1968-69) *Renkenberger*

*525. Romanticism (3)

Literary subject or trend; reading of literary and critical works. (Fall quarter, 1967-68) *Silver*

*526. Realism and Naturalism (3)

Study of one author or theme. (Winter quarter, 1967-68) *R. Cannaday, Silver*

*527. French Poetry of the Second Half of the Nineteenth Century (3)

Leconte de Lisle, Heredia, Rimbaud, Verlaine, Baudelaire, and Mallarmé. (Spring quarter, 1967-68) *Silver*

*529. Twentieth Century French Literature (3)

French literature to World War II. (Fall quarter, 1968-69) *O'Nan*

*531. Twentieth Century French Literature (3)

French literature after World War II. (Spring quarter, 1968-69) *O'Nan*

*533. Twentieth Century Intellectual Movements (3)

Movements such as Bergsonism, existentialism, and essentialism. (Spring quarter, 1967-68) *O'Nan*

*537. Applied Phonetics (3)

Advanced study of International Phonetic Alphabet and transcription practice in French. *Barlow*

*539. Structure of Modern French (3)

Morphology and syntax of contemporary French. (Spring quarter, 1967-68)

*541. Stylistics (3)

Translation of texts from English and American writers. Study of prosody: metrical structure, rhyme, stanza form, poetic diction. (Winter quarter, 1967-68)

551. Bibliography and Research Problems (3)

Basic literary history, criticism, and theory. Use of bibliographical resources. (Fall quarter) *O'Nan*

557. History of French Language (3)

Phonology, morphology, and syntax of Old French; evolution of French from its origin to present; reading of illustrative texts. Elementary knowledge of Latin recommended. (Fall quarter, 1968-69) *Flum*

561, 562, 563. Graduate Study in France (as recommended by dept.)

Research project abroad; must be approved by graduate committee. Time spent in research abroad must amount to at least one week for each quarter hour credit granted. Research paper must be presented to graduate committee by end of quarter following foreign study. Prereq: perm.

575. Novel from Seventeenth Century to Romanticism (3)

D'Urfé, Mlle. de Scudéry, Scarron, Cyrano de Bergerac, Mme. de La Fayette, Fénelon, Lesage, Prévost, Rousseau, Bernardin de Saint-Pierre, Laclos, Sénancour, Constant, Mme. de Stael, Chateaubriand, or others. (Fall quarter, 1967-68) *Danner*

580. French Literary Criticism: Nineteenth Century (3)

Mme. de Stael, Janin, Nisard, Sainte-Beuve, Taine, Faguet, Brunetière, Lamaitre, and others. (Winter quarter, 1967-68) *O'Nan*

597-598-599. Old French Language and Literature (3-3-3)

Language and literature of northern France and England in the Middle Ages, especially twelfth and thirteenth centuries. Elementary knowledge of Latin and German recommended. *Flum*

601. Seminar in Medieval Literature or Language (3, max. 9)

Topics to be announced. May be repeated for credit when topic is changed. (Winter quarter, 1968-69) *Flum*

602. Seminar in French Renaissance (3, max. 9)

Topics to be announced. May be repeated for credit when topic is changed. (Spring quarter, 1968-69) *Nybakken*

603. Seminar in Seventeenth Century (3, max. 9)

Topics to be announced. May be repeated for credit when topic is changed. (Fall quarter, 1968-69) *Danner, O'Nan*

604. Seminar in Eighteenth Century (3, max. 9)

Topics to be announced. May be repeated when topic is changed. (Spring quarter, 1967-68) *Renkenberger*

605. Seminar in Nineteenth Century (3, max. 9)

Topics to be announced. May be repeated for credit when topic is changed. (Winter quarter, 1967-68) *R. Cannaday, Nybakken, O'Nan*

606. Seminar in Twentieth Century (3, max. 9)

Topics to be announced. May be repeated for credit when topic is changed. (Fall quarter, 1967-68) *Silver*

699. Thesis (as recommended by dept.)**GERMAN****501, 502, 503. German for Graduate Reading Requirement (3, 3, 3)**

Preparation for reading knowledge examination required by certain departments for M.A. and Ph.D. degrees. Credit does not count toward degree.

***525, 526, 527. Nineteenth Century German Drama (3, 3, 3)**

German drama from Kleist to Naturalism. Papers dealing with specific problem or works of an author required (1967-68) *Burns*

***529, 530, 531. Twentieth Century German Literature (3, 3, 3)**

Naturalism to the present day. Research dealing with problem or individual author. (1967-68) *Carrier*

***532, 533. German Lyric Poetry (3, 3)**

Interpretative and critical study of German lyric poetry. (Winter and Spring quarters, 1968-69)

***537. Applied German Phonetics (3)**

Systematic, analytical description of sound system of modern German. (Winter quarter, 1967-68)

***539. Structure of Modern German (3)**

Structure of German language with emphasis on contrastive syntax of English and German. (Fall quarter, 1968-69)

***541. Stylistics (3)**

Practice in writing expository prose. (Spring quarter, 1967-68)

***543, 544, 545. Nineteenth Century German Prose (3, 3, 3)**

Novel and *Novelle* of such writers as Stifter, Storm, Raabe, Keller, Meyer, Fontane. One or more may be selected for special investigation. (1968-69)

***547. Age of Lessing (3)**

Dramas and critical works. A work or topic may be selected for investigation. (Fall quarter, 1967-68)

***548. Study of Schiller (3)**

Schiller as poet, dramatist, critic, and philosopher. Development of German classicism as embodied in Schiller's drama and work. (Winter quarter, 1967-68)

***549. Studies in Romanticism (3)**

Study of figures of early and late romanticism. (Spring quarter, 1967-68)

551. Bibliography and Method (3)

Methods of literary scholarship and criticism. Use of bibliographies. (Winter quarter) *Barstad*

***553, 554, 555. Goethe (3, 3, 3)**

Three main periods: 1749-1786; 1786-1814; 1814-1832. (1968-69)

557. History of German Language (3)

Study of standards in all centuries and changes in phonology, grammar, and word-formation. (Fall quarter, 1967-68)

561, 562, 563. Graduate Study in Germany (as recommended by dept.)

Research project abroad; must be approved by graduate committee. Time spent in research abroad must amount to at least one week for each quarter hour credit granted. Research paper must be presented to graduate committee by end of quarter following foreign study. Prereq: perm.

***575. Studies in Baroque Literature (3)**

Baroque literature in Germany: 1600-1700. (Fall quarter, 1968-69)

597-598-599. Middle High German (3-3-3)

Middle High German grammar. Readings in popular and courtly epics and *Minnesang*. (1968-69)

601, 602. Seminars in German Literature (3, 3; max. of 9, 9)

Topics to be announced. When topic changes, students may re-enroll. (Winter and Spring quarters, 1968-69: The German Novel) *Carrier, Krauss*

603. Seminar in Literary Criticism (3, max. 9)

Topics to be announced. When topic changes, students may re-enroll. (As needed)

692, 693. Seminars in German Linguistics (3, 3; max. 9, 9)

When topic changes students may re-enroll. Prereq: perm. (Winter and Spring quarters, 1967-68: Gothic: an introduction to Germanic [comparative] linguistics. May be used as part of the Ph.D. program in linguistics or for graduate German. Winter and spring quarters, 1968-69: Old High German grammar and reading of oldest literary documents.)

699. Thesis (as recommended by dept.)

ITALIAN

501, 502, 503. Italian for Graduate Reading Requirement (3, 3, 3)

Preparation for reading knowledge examination required by certain departments for M.A. and Ph.D. degrees. Credit does not count toward degree. (As needed)

RUSSIAN

501, 502, 503. Russian for Graduate Reading Requirement (3, 3, 3)

Preparation for reading knowledge examination required by certain departments for M.A. and Ph.D. degrees. Credit does not count toward degree. (As needed)

*511, 512, 513. Nineteenth Century Russian Poetry (3, 3, 3)

Literary and cultural background of nineteenth century through works of Pushkin and Lermontov. Works or topics selected by students for special investigation. (1968-69) *Ipacs*

*529, 530, 531. Russian Literature of Soviet Era (3, 3, 3)

Literature and Revolution of 1917. Post-revolutionary writers and currents. Students select special topics for investigation. (1968-69) *Franks*

*537. Applied Phonetics (3)
(Spring quarter, 1967-68) *Franks*

*539. Structure of Modern Russian (3)

Phonology, morphology, and syntax of contemporary Russian. (Fall quarter, 1968-69) *Frink*

*541. Stylistics (3)

Fall quarter, 1969-70)

*543, 544, 545. Nineteenth Century Novel (3, 3, 3)

Biographies. Novels of Gogol, Turgenev, and Tolstoy. (1967-68) *Ipacs*

597, 598, 599. Russian Language (3, 3, 3)

Development of Russian phonology, morphology, and syntax from Common Slavic to present; texts which illustrate development of Russian lexicon and style. (1968-69) *Frink*

601. Seminar in Literature (3, max. 9)

Topics to be announced. When topic is changed, students may re-enroll. (Spring quarter, 1967-68: Russian Emigré Literature) *Franks*

SPANISH

501, 502, 503. Spanish for Graduate Reading Requirement (3, 3, 3)

Preparation for reading knowledge examinations required for various graduate programs. Credit does not count toward degree. *MacDonald*

*525. Nineteenth Century Peninsular Drama (3)

Romantic and post-romantic drama including works of Echegaray. Special research project required. (Fall quarter, 1968-69) *LaJohn*

*526. Nineteenth Century Poetry and Essays (3)

Lyric poetry, *romances*, poetry of Espronceda, Bécquer, and Castro; writings of the *costumbristas*. Special research project required. (Winter quarter, 1968-69)

*527. Nineteenth Century Peninsular Novel (3)

Regional novel from Fernán Caballero through Blasco Ibáñez and Pérez Galdós. Special research project required. (Spring quarter, 1968-69) *Santaló*

*529, 530. Generation of '98 (3, 3)

Literary trends of the Generation of '98. Special projects dealing with the works of Azorín, Baroja, Benavente, Machado, Unamuno, and Valle-Inclán. (Fall and Winter quarters, 1967-68) *Cameron*

***532. Twentieth Century Spanish Drama (3)**
Drama from Benavente to Civil War, including García Lorca. Special research projects. (Winter quarter, 1967-68) *LaJohn*

***533. Spanish Literature Since Civil War (3)**
Historical background, theories of literature, and literary movements in peninsular literature from Cela to present. Special research projects. (Spring quarter, 1967-68) *Spires*

***537. Applied Phonetics (3)**
Systematic, analytical description of segmental and prosodic elements of sound system of Spanish, from both acoustic and articulatory points of view, particularly as contrasted with English. *N. Cannaday*

***539. Structure of Modern Spanish (3)**
Syntactical and grammatical structure of modern Spanish. (Spring quarter, 1967-68)

***541. Stylistics (3)**
Achieving an adequate style in written Spanish. (Spring quarter, 1968-69) *Conliffe*

***543, 544, 545. Latin American Literature (3, 3, 3)**

Main currents of Latin American literature from colonial period through Modernism. Special research projects. (1967-68) *Serna-Maytorena*

***547. Novel of Mexican Revolution (3)**
Social and literary significance of the novel of revolutionary theme written from 1910 to present: Azuela, Rulfo, Yáñez, and others. (Fall quarter, 1968-69) *Serna-Maytorena*

***548. Contemporary Latin American Literature (3)**

Principal authors and literary movements of post-Modernism. Special research projects. (Winter quarter, 1968-69) *Previtali*

551. Bibliography and Research Problems (3)
Basic literary history, criticism, and theory. Use of standardized bibliographical resources. (Fall quarter) *O'Nan*

553, 554. Drama of the Golden Age (3, 3)
Development of theater during the Golden Age: Lope de Vega, Tirso de Molina, Juan Ruiz de Alarcón, Calderón de la Barca, and related dramatists. (Fall quarter, 1968-69) *LaJohn*

555. Novel of the Golden Age (3)
Emphasis upon picaresque novel. (Winter quarter 1968-69)

557. History of Spanish Language (3)
Evolution of Spanish language, beginning with examination of pre-Romance Iberian languages and going from Vulgar Latin to present. Consideration of contemporary dialects. (Fall quarter, 1967-68) *MacDonald*

558, 559. Cervantes (3, 3)
Intensive study of *Don Quijote de la Mancha*. Lectures on other writings of Cervantes. (Winter and Spring quarters, 1967-68) *MacDonald*

561, 562, 563. Graduate Study in Spain or Latin America (as recommended by dept.)

Research project abroad; must be approved by graduate committee. Time spent in research abroad must amount to at least one week per each quarter hour credit. Research paper must be presented to graduate committee by end of quarter following foreign study. Prereq: perm.

597-598-599. Old Spanish Language and Literature (3-3-3)

Phonology, morphology, and syntax of Old Spanish. Readings from the *Cantar de Mio Cid*, Gonzalo de Berceo, Juan Ruíz, and other representative works of medieval Spanish literature. Prereq: knowledge of Latin or perm. *MacDonald*

601, 602, 603. Seminars (3, 3, 3; max. 9, 9, 9)
May be repeated when topic is changed.

- a. Literature of the Middle Ages (3)
Hinkle, MacDonald
- b. Literature of the Renaissance (3)
- c. Modern Spanish Literature (3)
LaJohn, Santaló, Spires
- d. Latin American Colonial Literature (3)
Conliffe
- e. Latin American National Literature (3)
Serna-Maytorena
- f. Latin American Modern Literature (3)
Previtali

651, 652. Reading and Research: Problem in Latin American Civilization or Literature (3, 3; max. 9, 9)

Class presentation of research papers. For graduate students with considerable background in area being studied. May be repeated when topic is changed. Prereq: perm. (On demand) *Cameron*

653, 654. Reading and Research: Problem in Spanish Linguistics or Criticism (3, 3; max. 9, 9)

Class presentation of research papers. For

graduate students with considerable background in area being studied. May be repeated when topic is changed. Prereq: perm. (On demand)

699. Thesis (as recommended by dept.)

MOTION PICTURE

(See Art History and Comparative Arts)

MUSIC

(See also Comparative Arts)

APPLIED MUSIC HISTORY AND LITERATURE THEORY AND COMPOSITION MUSIC EDUCATION

Boxberger, Brockett, Brophy, Conkling, Hall (acting director and graduate committee chairman), Jennings, Katz, Kroeger, Lewis, Longstreet, Merritt, Minelli, Peterson, Rivers, Sanov, Smith, Syracuse, Thrailkill, Wickstrom, Witzler, Wurtz.

To major in music an applicant for admission is required to have finished successfully a four-year undergraduate curriculum in music from an institution which holds membership in the National Association of Schools of Music, or from any other accredited institution offering undergraduate music degrees equivalent in hours and content. In addition, all beginning graduate students are subject to a proficiency examination including theory, music history and literature, and the student's area of concentration. If deficient in any area, the student will be required to take appropriate courses to remove the deficiency. In cases where the undergraduate preparation is not in the area planned for graduate study, the student must demonstrate a level of achievement fully equivalent to that provided by the bachelor's degree in the field concerned.

All graduate programs are based upon the completion of a minimum of 45 quarter hours of work beyond the bachelor's degree. A thesis or its equivalent (a full length recital) is required of all graduate students. An original composition in a large form fulfills this requirement for composition majors. In certain exceptional cases in which the student's advisory committee feels an unusual emphasis on applied music is of special importance to the student's program of study, the student in music education may apply to the graduate committee for permission to present a graduate recital in lieu of thesis.

The student majoring in music education may, upon the recommendation of his ad-

viser, elect from 8 to 14 hours in an area outside the School of Music.

APPLIED MUSIC

542. Applied Music (1-4, max. 6)

Not open to applied majors.

- a. Voice
- b. Piano
- c. Stringed Instruments
- d. Woodwind Instruments
- e. Brass Instruments
- f. Percussion Instruments
- g. Organ

Prereq: perm.

*545. Ensemble (1, max. 6)

Prereq: perm.

552. Applied Music (4-6, max. 22)

For applied majors only.

- a. Voice
- b. Piano
- c. Stringed Instruments
- d. Woodwind Instruments
- e. Brass Instruments
- f. Percussion Instruments
- g. Organ

Prereq: perm.

*555. Advanced Conducting (3, max. 6)

Advanced reading and conducting of large works for choir or orchestra or both. Also standard and new works for public school and college groups. Vocal emphasis, 1968; instrumental emphasis, 1969. (Spring quarter) *Wurtz, Sanov*

699. Recital (Thesis) (0)

Full-length public recital, a recording of which will be filed in the library. Prereq: perm.

HISTORY AND LITERATURE

521-522-523. History of Musical Styles (3-3-3)

History of musical styles from Medieval period to present time. *Brockett*

*524. Literature of — (3)

- a. Vocal Music (Fall quarter, 1967)
- b. Piano Music (Winter quarter, 1968)
- c. Chamber Music (Spring quarter, 1968)
- d. Orchestral Music (Fall quarter, 1968)
- e. Organ Music (Winter quarter, 1969)

f. Opera (Spring quarter, 1969)
Brockett, Conkling, Jennings, Wickstrom, Wortman, Wurtz

531. Ancient and Medieval Music (3)

Music as artistic and theoretical expression of antiquity and the Middle Ages; history of musical styles to c. 1410. Prereq: perm. (Spring quarter, 1968) *Brockett*

532. Music of the Renaissance (3)

Musical styles c. 1410-c. 1600. Prereq: perm. (Fall quarter, 1968) *Brockett*

533. Music of Baroque Period (3)

Musical styles c. 1600-c. 1730. Prereq: perm. (Winter quarter, 1969) *Wortman*

534. Music of Classic Period (3)

Music styles of rococo and classicism through first quarter of 19th century. Prereq: perm. (Spring quarter, 1969) *Wortman*

535. Music of Nineteenth Century (3)

Music as artistic expression of 19th century Romanticism. Prereq: perm. (Fall quarter, 1967) *Brockett*

536. Contemporary Music (3)

Music as artistic expression of our time. Various styles since c. 1900. Prereq: perm. (Winter quarter, 1968) *Wortman*

537-538-539. Analysis of Musical Notation (3-3-3)

Paleography; primitive, neumatic, and medieval polyphonic systems to c. 1300. (Fall quarter) Ars nova and white notation (Winter quarter) Keyboard scores and partituras; tablatures. (Spring quarter) *Brockett*

620. Seminar in Theory and Music History and Literature (2, max. 6)

Individual studies of problems in music history and theory. Methods of music research and use of music bibliography. *Brockett, Hall*

699. Thesis (as recommended by dept.)

THEORY AND COMPOSITION

501-502-503. Theory Survey (3-3-3)

Theory of music of the period of common practice. *Hall, Wortman*

507. Advanced Counterpoint (Fugue) (3)

Prereq: perm. (Fall quarter) *Hall*

508-509. Modern Counterpoint (3-3)

Contrapuntal practices of 20th century. Prereq: 507, perm. (Winter and Spring quarters) *Hall*

*510-511-512. Composition (3-3-3)

Extensive writing in larger vocal and instrumental forms. Prereq: perm. *Ahrendt, Hodkinson*

513-514-515. Advanced Orchestration (2-2-2)

Problems in scoring original works for modern symphony orchestra. Satisfactory scores are performed by the Ohio University Symphony Orchestra. Prereq: perm. *Ahrendt, Hodkinson*

516-517-518. Evolution of Harmonic Theory (3-3-3)

Writing of the most important music theorists from 10th century to present. Prereq: perm. *Hall*

620. Seminar in Theory and Music History and Literature (2)

(See Music History and Literature) *Brockett, Hall*

699. Thesis (as recommended by dept.)

MUSIC EDUCATION

563. Instrumental Techniques and Materials (3)

Advanced techniques for high school and college instrumental groups. Literature and materials. (Spring quarter) *Minelli*

*564. Marching Band Techniques (3)

Techniques for preparation of high school and college marching band performance. Prereq: perm. (Winter quarter) *Thrailkill*

565. Choral Techniques and Materials (3)

Advanced techniques for high school and college vocal groups. Literature and materials. (Winter quarter) *Wurtz*

566. Problems in Elementary Music (3)

Advanced course in techniques and materials. (Spring quarter) *Wurtz*

*567. Scoring for Bands (3)

Writing techniques for marching and concert bands. Prereq: perm. (Spring quarter) *Minelli*

*568. General Music in the Junior High School (3)

Materials and methods; listening program; changing voice. Prereq: perm. (Winter quarter) *Wurtz*

571. Supervision of School Music (3)

Function of supervisor, consultant, or coordinator of music in public schools. Curriculum developments, teaching aids, in-service train-

ing, and community-school relationships. (Fall quarter)

***576a,b. Workshops (1-1) (summer only)**

a. Music Clinic-Workshop

b. Elementary Music Workshop

May be repeated for credit, but credit may be applied to *degree electives* only once for each workshop. Prereq: perm. Other clinics and workshops to be announced.

***581-582. Psychological Foundations of Music I-II (3-3)**

Nature and extent of psychological investigations bearing upon composition, performance, and education in field of music. Prereq: perm. (Winter and Spring quarters) *Boxberger*

670. Contemporary Trends in Music Education (3)

Problems, objectives, and current practices in music education and related fields. (Fall quarter)

671-672. Advanced Topics in Music Education (3-3, max. 6)

History and philosophy of music education, sociology of music, esthetics and education, comparative practices in music education, music in contemporary society. (Fall and Winter quarter)

674. Experimental Studies (3)

Experimental methods as applied to problems of music and music education, including research in music education and related areas. Individual projects required. (Winter quarter) *Boxberger*

675. Seminar in Music Education (2, max. 6)

Significant developments and current literature in music education. Individual reports and discussion. 4 hrs. required of all music education students. *Boxberger*

677. Organization and Administration of School Music (3)

For directors of school music programs. Finance, organization and administration, personnel, materials and equipment. Individual projects and reports required. (Spring quarter)

699. Thesis (as recommended by dept.)

PAINTING

(See Art, Art History, and Comparative Arts)

PATHOLOGY

(See Communication)

PHILOSOPHY

Borchert, Butrick, Foxx, Grean, Lisman, Machado, Murphree (graduate committee chairman), Nosco, Oastler, Organ, Perotti, Rickert, Rogers, Rubin, Ruchti, Saydah, Smith, Wieman (chairman).

Only students who have received a 3.0 (B) average in their undergraduate courses in philosophy and a 2.5 average in other undergraduate courses will be admitted as majors in philosophy. The prerequisites for beginning a graduate major is 18 hours, including courses in ethics and logic, and one year in the history of philosophy.

***514. Philosophical Analysis (3)**

Moore, Russell, Wittgenstein. *Smith*

***515. Contemporary Philosophical Problems (3)**

Issues from current journal literature. *Foxx*

***516. Philosophy of Science (3)**

Analysis of selected problems in logic and methodology of sciences. Prereq: perm. *Ruchti*

***518. Plato (3)**

Wieman

***519. Aristotle (3)**

Organ

***521. Logical Theory (3)**

Metamathematics, set theory, proof theory, and decision problems. Prereq: 3 hrs. math beyond analytical geometry and calculus, or perm. *Butrick*

***528. Continental Rationalism (3)**

Descartes, Spinoza, Leibniz. *Wieman*

***529. British Empiricism (3)**

Locke, Berkeley, Hume. *Lisman*

***530. Contemporary Ethical Theory (3)**

Current literature in selected topics of moral philosophy. Prereq: perm. *Saydah*

***531. Esthetics (3)**

Critical inquiry into modern theories of art, creative activity and response, logic of criticism, and relation to selected arts. *Rickert*

***532. Development of Esthetic Theory (3)**

Evolution of philosophies of art, from Plato to Croce, and relation to selected arts and recent criticism. *Rickert*

*538. Kant (3)

Prereq: perm. *Rogers*

*539. Nineteenth Century European Philosophy (3)

Subjects selected from French, German, and British philosophers of the nineteenth century. *Rogers*

*540. Contemporary Social Philosophy (3)

Murphree

*548. Pragmatism (3)

Peirce, James, Dewey. *Rubin*

*550. Theory of Knowledge (3)

Critical examination of various views of what knowledge is and how it is attained. *Oastler*

*551. Metaphysics (3)

Basic alternative conceptions of the world, and such topics as nature of substance, causality, the self, freedom, space and time. *Perotti*

*558. Existentialism (3)

Development of existentialism from Kant through Schopenhauer to Camus. *Perotti*

*560. Contemporary Religious Thought (3)

Representative thinkers such as Tillich, Buber, and others. *Grean*

*568. Phenomenology (3)

Method and philosophy of the phenomenological movement from Husserl to Merleau-Ponty. *Machado*

*570. Indian Philosophy (3)

Classical Hinduism. Prereq: perm. *Nosco, Organ*

*571. Buddhist Philosophy (3)

Philosophies associated with Buddhism, the chief religion of southeast Asia. Prereq: perm. *Nosco, Organ*

690. Supervised Teaching (2)

Supervised experience, including observation, discussion and counsel. Prereq: perm.

691. Seminar in Philosophy (3, max. 15)

Selected problems. Prereq: perm.

692. Special Studies (1-15)

Advanced study of philosopher, movement, or problem, to provide intensified training in area of concentration related to, but not necessarily that of the student's thesis. Prereq: perm.

695. Thesis (as recommended by dept.)

PHOTOGRAPHY

(See also Comparative Arts)

Allen, Anderson, Truxell (graduate committee chairman), White (chairman).

To begin a graduate major in photography, a student must present at least 18 hours of undergraduate credit in photography and 9 hours in art, and must submit evidence of photographic ability (a portfolio of photography is recommended).

To begin a graduate minor in photography, a student must present at least 18 hours of undergraduate credit in photography and evidence of photographic ability. At least 90 quarter hours are required for the M.F.A. degree.

*501, 502, 503. Photographic Processes (3, 3, 3)

History of photographic processes, photographic optics, photochemistry, sensitometry, photographic printing processes, and mechanical reproduction methods. 3 lec. Prereq: perm.

504. Figure Photography (3, max. 6)

Intense individual practice in photographing the human figure. 6 lab. Prereq: 579, perm.

*505, 506, 507. Workshop in Photography (3, 3, 3)

Individual practice in problems in photographic design and technique. 6 lab. Prereq: perm.

508. Experimental Photographic Techniques (3, max. 6)

Group investigation of esthetic use of experimental and commercial photographic reproduction techniques. 6 lab. Prereq: perm.

*551, 552, 553. Newspaper and Magazine Photography (3, 3, 3)

Photographic techniques for newspaper picture reporting, including engraving problems, ethics, libel, and the law; introduction to picture story and related problems. Not open to those who have had similar undergraduate courses. 1 lec., 4 lab. Prereq: perm.

*561, 562, 563. Motion Picture Production (5, 5, 5)

Motion picture structural theories in practice, elementary scripting approaches, camera technology, uses of sound, editing techniques, production practices, laboratory methods. Intensive exercise as individual film maker in production of several short motion pictures. Not open to those who have had similar undergraduate courses. 2 lec., 8 lab. Prereq: perm.

***577, 578, 579. Portraiture (3, 3, 3)**

Traditional and experimental approaches including fashion and dance. Not open to those who have had similar undergraduate courses. 1 lec., 4 lab. Prereq: perm.

***582, 583, 584. Commercial and Illustrative Photography (3, 3, 3)**

Studio and location work in commercial, advertising, industrial and architectural photography. Problems of studio operation and free-lance photography. Not open to those who have had similar undergraduate courses. 1 lec., 4 lab. Prereq: perm.

***591, 592, 593. Color Photography (5, 5, 5)**

Theory of color photography, practice with color transparency materials, direct separation, separation from transparencies, masking, and color printing. Not open to those who have had similar undergraduate courses. 1 lec., 8 lab. Prereq: perm.

604. Figure Photography (3, max. 6)

Intense individual practice in photographing the human figure. 6 lab. Prereq: perm.

608. Experimental Photographic Techniques (3, max. 6)

Group investigation of esthetic use of experimental and commercial photographic reproduction techniques. 6 lab. Prereq: perm.

***654, 655, 656. Advanced Picture Story (3, 3, 3)**

Advanced studies in production and use of sequential images. Not open to those who have had similar undergraduate courses. 1 lec., 4 lab. Prereq: 553.

***664, 665. Film Structure: Writing and Editing (3, 3)**

Script writing for dramatic, documentary, and implemental films. Structural problems of non-scripted films. Editing organization of picture and sound materials. Not open to those who have had similar undergraduate courses. 1 lec., 4 lab. Prereq: 563 or perm.

677, 678, 679. Advanced Portraiture (3, 3, 3)

Study and practice in photography of people. 1 lec., 4 lab. Prereq: 579.

***680. Individual Problems in Photography (1-3, max. 12)**

Individual study and practice in specialized phase of photography under instructor's supervision. Prereq: perm.

***681. Individual Readings in Photography (1-3, max. 12)**

Prereq: perm.

682, 683, 684. Advanced Commercial and Illustrative Photography (3, 3, 3)

Problems in commercial and illustrative photography, in studio operation, and in free-lance photography. 1 lec., 4 lab. Prereq: 584, perm.

691, 692, 693. Advanced Color Photography (3, 3, 3)

Photographic color printing processes. Problems in printing in color with dye transfer, Ektacolor, and other processes. 1 lec., 4 lab. Prereq: 593, perm.

690. Written Thesis (as recommended by dept.)**694. Photographic Thesis (as recommended by dept.)**

PHYSICAL EDUCATION AND INTERCOLLEGIATE ATHLETICS

LaTourrette, Mason (graduate committee chairman), Mattmiller, Miller, Phillips, Rhoads, Trepp, Widdoes, Wilkinson.

A student wishing to begin a graduate major in physical education will be expected to present a minimum of 36 quarter hours of approved work in physical education or equivalent work as approved by the Division of Physical Education and Intercollegiate Athletics. This approved work would approximate the State of Ohio—certifiable minor in Health and Physical Education.

MASTERS DEGREE IN PHYSICAL EDUCATION WITH MAJOR EMPHASIS IN SPORTS ADMINISTRATION

The master's degree program in physical education with a major emphasis in sports administration is designed to prepare the student for a career in the administration of a sports program at either the public school, college or professional level.

In preparation for master's degree work the student will be expected to complete specified courses in physical education as approved by the Division of Physical Education and Intercollegiate Athletics. In addition the student must have background courses in business, radio-television and journalism.

The curriculum includes required courses in problems in the administration of competitive athletics, research in competitive athletics and internship in competitive athletics. Elective courses include tests and measurements in physical education, administration in physical education, and advanced courses in

speech, management, personnel management, journalism, radio-television, business law, labor relations, psychology and sociology.

The student must pass a written major examination based on the courses taken in his major field of study, including the internship experience. This examination is taken as directed by the major department.

The graduate student in physical education has optional plans of study. Plan A includes 39 quarter hours of course work plus a six quarter hour thesis. Plan B is 48 quarter hours of course work, including a five quarter hour research seminar.

Plan A

A graduate student may work toward either the Master of Science or the Master of Education degree in physical education, depending on his background of preparation and program of graduate study.

Students who elect graduate study in physical education and the related subjects of health education and recreation may combine these interests into a major of 24 to 27 course hours and a thesis. One or two other areas will be associated with this major to complete 39 course hours plus a six hour thesis.

Associated areas or minors may be selected from related graduate course offerings in the University with the understanding that a minimum of nine or more hours of prerequisite study are usually required before graduate study is permitted. The following minors are commonly selected: educational administration, counseling and guidance, history, human relations, social science, biological science, psychology or industrial arts. The student, however, is in no way limited to these areas. The student electing to follow Plan A leading to the M.S. or M.Ed. degree will comply with the requirements outlined in the Graduate College edition of the *Bulletin*.

The student must pass a written major examination based on the courses taken in his major field of study. This examination is taken as directed by the major department.

Plan B

Plan B permits the graduate student to work towards the Master of Education degree. This plan is available under the same requirements as Plan A, except for the following provisions:

1. The student must be approved for the program by the committee on graduate study in physical education. This approval is given only if, after a review of the student's educational aims and interests, the program seems to fit his needs.

2. The student will complete a minimum of 48 quarter hours of credit for the degree.

Within this program 24 to 27 course hours are taken in his major field. One or two other areas will be associated with this major to complete the required hours.

3. A seminar research course is required. The student will develop a problem in health education, physical education, recreation, athletics, or a related area. The written report of the problem must conform with the format as recommended by the Graduate College for research writing.

4. The student must pass a written major examination based on the courses taken in his major field of study. This examination is taken as directed by the major department.

500. Guided Independent Study (1, max. 2)

Guided independent study of selected problem with written report based on research. *Mason, Miller*

*504. History and Principles of Physical Education (5)

Physical education systems and their influences from time of Greeks; principles underlying physical education in modern program of education. Prereq: perm. *Mason*

*506. Organization and Administration of Physical Education (5)

Methods of organizing and administering health and physical education, recreation and athletics in schools and colleges. *Mason, Miller*

507. Problems of Interschool Athletics (5)

Problems pertaining to interschool athletic competition at all age levels. *Rhoads*

*509. Tests and Measurements (5)

Methods of evaluation in health education, physical education, and athletics; practice in handling testing data by elementary statistical methods. *Wilkinson*

*549. Community Recreation (4)

History of play movement, programs and program building, administration of playgrounds, community centers, and recreational activities. *Wilkinson*

*553. Clinical Observation and Practice in Physical Medicine and Rehabilitation (6)

A concentrated summer school field course at Veterans Administration Hospital, Chillicothe. Prereq: perm. *V.A. Hospital Staff*

*595. School Health Problems (5)

Principles, problems, organization, and administration of school health programs including school and community relationships. *Trepp*

601. Problems in Health and Physical Education (4)

Investigation of selected problems in health education and physical education; research reading, discussion, analysis, written reports, examinations. *Mason*

610. Curriculum in Physical Education (4)

Analysis of criteria and procedures for curriculum construction in physical education; critical evaluation of courses of study; development of written guides for programs in elementary and secondary schools, colleges, and universities. *Mason*

652. Physical Diagnosis (4)

Deficiencies and defects characteristic of children that handicap normal physical, mental, and social development, and techniques in conducting health examinations and clinical service. *Mattmiller*

691. Seminar in Physical Education and Athletics (5)

Research and investigation in health education, physical education, recreation, or athletics. Topics and problems suitable for thesis writing, methods of research, writing practice, and critical analysis of outlines for research study. (*Required of all master's degree candidates.*) *Mason, Phillips*

692. Foundations of Health Education and Physical Education (5)

Scientific principles from biology, psychology, and sociology, underlying programming, instruction, and administration of health education and physical education. *Miller*

695. Thesis (as recommended by dept.)

Any of the following courses may be elected in meeting the requirements for the graduate major in physical education:

Zoology 546	Comparative Physiology (6)
Zoology 548	Cellular Basis of Animal Behavior (5)
Psychology 537	Psychopathology I (3)
Psychology 538	Psychopathology II (3)
Education 512	Educational Measurement (3)
Education 521	Educational Statistics (4)
Education 522	Advanced Educational Statistics (4)

PHYSICS

Adams, Barry, Bishop, Breitenberger (graduate committee chairman), Brient, Chen, Dille, Finlay, Hunt, Huwe, Koshel, Lane, Munir, Onley, Randall (chairman), Rollins, Sanford, Stumpf, Unruh, Yun.

Graduate study and research leading to both the master's degree and the doctorate are offered in physics. Students who plan to enter these degree programs should have completed the requirements for a baccalaureate degree with a major in physics, including a working knowledge of mathematics through integral calculus and the elements of partial differential equations, Fourier series and vector analysis. Students who lack such preparation are permitted to do remedial work prior to their normal program of graduate study.

The graduate student in physics plans his individual program of studies in close cooperation with a senior faculty adviser after careful perusal of his background and experience. Courses in related fields such as chemistry, engineering and mathematics may be included in the program. The following courses are recommended to all students in the first two years of graduate study: 504, 505-506, 507-508, 519-520, 515 or 613, four hours of advanced laboratory, and the courses given in mathematics on advanced calculus, modern algebra and special functions. All graduate students in residence are required to attend the weekly colloquium.

A physics graduate student is encouraged to choose as early as possible a research interest from one of the following fields: acoustics, chemical physics, cosmic rays, high energy, low temperature, solid-state, theory, X rays.

The general requirements of the Graduate College must be met, including a reading knowledge of two foreign languages; an appropriate scientific skill may be substituted for one language.

501. Graduate Laboratory (2)

Selected experiments from all areas of physics requiring accurate measurements with refined apparatus. (Winter and Summer quarters) *Sanford*

502. Graduate Laboratory (2)

Selected experiments from all areas of physics requiring accurate measurements with refined apparatus. (Winter and summer quarters) *Sanford*

***503. Digital Computing Methods in Physics (2)**

Practical computer programming (FORTRAN, etc.) with special emphasis on problems in physics; familiarization with practices in a modern computation center. (Spring quarter) *Bishop*

504. Thermophysics (4)

Thermodynamical principles, potentials and equilibrium criteria; ensembles, fluctuations and partition functions; statistics of Bose-

Einstein Fermi-Dirac and Boltzmann; applications to ideal systems. (Spring quarter) *Finlay*

505. Classical Mechanics (3)

Basic analytical techniques for point mass systems and rigid bodies in traditional and contemporary perspective; mathematical complements. (Fall quarter) *Onley*

506. Classical Mechanics (3)

Continuation of 505 (Winter quarter) *Onley*

507. Electrodynamics (3)

Deductive development from Maxwell's equations, including recent advances; special theory of relativity and applications to charged particle problems; mathematical complements. (Fall quarter) *Breitenberger*

508. Electrodynamics (3)

Continuation of 507. (Winter quarter) *Breitenberger*

509. Electrodynamics (3)

Continuation of 508. (Spring quarter) *Breitenberger*

***510. Optics (3)**

Fundamentals of geometrical and physical optics. Reflection, refraction, lenses, simple aberrations; interference phenomena, scalar diffraction theory; coherence; double refraction, and selected introductory topics in modern optical techniques. (Spring quarter)

***511. Thermodynamics (2)**

The first and second laws of thermodynamics, phase changes, and entropy. Discussion of temperature, thermodynamic variables, equations of state, heat engine. (Fall quarter) *Stumpf*

***512. Kinetic Theory and Statistical Mechanics (3)**

Kinetic theory, transport phenomena, and classical and quantum statistics. (Winter quarter)

513. Optical Physics (3)

Selected topics based on Maxwell's equations. (Spring quarter) *Munir*

514. Relativity (2)

Special relativity and Lorentz transformations with applications to selected topics in mechanics, electricity and magnetism, and particle physics. (Spring quarter)

515, 516, 517. Methods of Theoretical Physics (3, 3, 3)

Selected, advanced mathematical methods em-

ployed in theoretical physics. Group theory, linear operators, and partial differential equations are treated at regular intervals.

519. Introductory Quantum Mechanics (3)

Basic applications of the Schroedinger equation; operators, eigenfunctions and uncertainty relations; angular momentum, spin, exchange and symmetry effects, mathematical complements. (Fall quarter) *Chen*

520. Introductory Quantum Mechanics (3)

Continuation of 519. (Winter quarter) *Chen*

521. Quantum Theory (3)

Matrix mechanics; formal developments and methods of calculation; Dirac theory; mathematical complements. (Fall quarter) *Dilley*

522. Quantum Theory (3)

Continuation of 521. (Winter quarter) *Dilley*

523. Second Quantization (3)

Basic techniques; emission and absorption of electromagnetic radiation; applications to many-body systems of diverse types. (Spring quarter) *Onley*

***524. Optics Laboratory (2)**

Experiments in geometrical and physical optics including laser experiments. (Fall quarter)

***525. Spectroscopy Laboratory (2)**

Optical spectroscopy in atomic system; high resolution spectroscopy. (Winter quarter) *Unruh*

***526. Spectroscopy Laboratory (2)**

Radio frequency and optical spectroscopy in solids and other condensed systems. Measurement of energy levels and quantum numbers of physical systems through their interactions with electromagnetic radiation and fields. (Spring quarter)

***527. Acoustics (3)**

Fundamentals of vibration and sound wave propagation. (Spring quarter) *Stumpf*

***528. Basic Electrical Measurements Laboratory (3)**

Electrical and electronic measurements and techniques including some basic vacuum tube and semi-conductor circuits analysis, and basic amplification techniques. Applications to measurements of electronic circuits, electric and magnetic fields, temperature, etc. (Fall quarter) *Brient*

***529. Radio Frequency Measurements Laboratory (2)**

Basic amplification and transmission techniques and semi-conductor circuit analysis. Application to microwave circuits, noise averaging, magnetic resonance, etc. (Winter quarter) *Brient*

***530. Pulse Electronics Laboratory (2)**

Basic electronic pulse shaping, amplification, logic, and timing. Applications to particle and photon radiation measurements, logic, data acquisition, etc. (Spring quarter)

***531. Atomic and Nuclear Laboratory (2)**

X ray diffraction, refraction, polarization and absorption, Moseley's law, Planck's constant, crystal analysis and other experiments. (Fall quarter) *Edwards*

***532. Atomic and Nuclear Laboratory (2)**

Particle and radiation detectors, analysis of X ray and gamma-ray spectra with scintillation and solid-state devices, Compton scattering, range of alpha particles and other experiments. (Winter quarter) *Edwards*

***533. Atomic and Nuclear Laboratory (2)**

Radioactivity, beta-ray spectroscopy, Rutherford scattering, lifetime of mu meson, velocity of gamma rays and other experiments. (Spring quarter)

***534. Neutron Laboratory (2)**

Selected experiments on neutron interaction with nuclei and with bulk matter. (Fall quarter)

***535. Neutron Laboratory (2)**

Selected experiments on neutron interaction with nuclei and with bulk matter. (Winter quarter) *Sanford*

548. Atomic and Molecular Spectra (3)

General survey, using elementary quantum mechanics. (Spring quarter)

549. Introduction to Nuclei and Particles (3)

Experimental and basic theoretical aspects of interactions of particles in matter. Elements of nuclear structure and nuclear reactions. Properties of subnuclear particles. (Fall quarter) *Finlay*

550. Introduction to Nuclei and Particles (3)

Continuation of 549. (Winter quarter) *Finlay*

***560. Introduction to Solid-State (3)**

Fundamental properties of crystalline materials, using elementary quantum mechanics and statistical mechanics. (Spring quarter) *Rollins*

613. Mathematical Physics Practicum (2)

Selected mathematical techniques important to the physicist. *Onley*

680. Special Study (1-3)

Supervised individual study in preparation for research. Prereq: perm.

681. Research (as recommended by dept.)

Prereq: perm.

687. Colloquium (1)

Selected topics of current interest.

690. Problems in College Teaching (1-3)

For all graduate students assigned to teaching duties.

691. Seminar (1-3)

Thorough study of an important area. Experimental techniques, classic experiments, and statistical methods are discussed at regular intervals.

695. Thesis (as recommended by dept.)**701, 702. Statistical Mechanics and Thermodynamics (2, 2)**

Selected topics. (Fall and winter quarters) *Chen, Barry*

709. Particle Theory (3)

Theoretical formulations and current questions regarding nature of, and interactions between, subnuclear particles. *Huwe*

710. Particle Theory (3)

Continuation of 709. *Huwe*

720, 721, 722. Advanced Quantum Theory (3, 3, 3)

Selected topics. *Chen, Dilley, Koshel*

730. Classical Continuum Mechanics (3)

Selected, fundamental topics. *Breitenberger*

749. Nuclear Theory (3)

Theory of nuclear reactions and nuclear models. (Fall quarter)

750. Nuclear Theory (3)

Continuation of 749. (Winter quarter) *Koshel*

751. Advanced Nuclear Theory (3)

Selected topics of current interest. (Spring quarter) *Koshel*

760, 761, 762. Solid-State Theory (3, 3, 3)

Application of quantum theory to the perfect crystal and to imperfections in solids. *Chen, Sanford*

763. Advanced Solid-State Theory (3)
Selected topics. (Spring quarter) *Barry*

791. Research Seminar (1 to 3)
Intensive study of selected subjects by special groups. Prereq: perm.

881. Doctoral Research (as recommended by dept.)
Prereq: perm.

895. Dissertation (as recommended by dept.)

POLITICAL SCIENCE

(See Government)

PSYCHOLOGY

Boice, Bradshaw, Bruning, Corwin, Crawford, Drevenstedt, Ferguson, Games, Hanek, Kahn, E. Kimmel, H. Kimmel, Klare, Koons, Land, Leckart, Maurath, Moates, Nickols, Paulsen, Pullen, Russell, Semans, Snyder (chairman and graduate committee chairman), C. Waters, L. Waters, Whalen, Worden.

To begin a graduate major in psychology the student must present an undergraduate scholastic average of 3.3 (B+) in the major field, with a minimum of 27 quarter hours of psychology or equivalent work, as approved by the department. Included in undergraduate preparation should be courses in statistics and in experimental psychology. Graduate Record Examination scores (aptitude and advanced tests) and an undergraduate grade point average of 3.0 are required.

To begin a graduate minor in psychology, a minimum of 12 quarter hours is required.

Although the emphasis in the master's degree program is directed toward preparation for further study, specialization is offered in the areas of clinical, counseling, general-experimental, industrial, and school psychology. Internship arrangements for school psychology majors may be made through Psych. 678.

Doctoral degrees are offered in general-experimental, clinical-counseling, or industrial psychology. A master's degree in psychology is a prerequisite to this program, with a graduate grade point average of 3.5. In clinical or counseling psychology a year of predoctoral internship in an approved agency is required. MAT and GRE scores, and recommendations are necessary for admission to the doctoral program.

The facilities of the Center for Psychological Services and the Athens State Hospital provide opportunities for the training of

graduate students in psychology, as well as services to University students, staff, and faculty.

***501. Experimental Sensory Psychology (4)**
Sensory processes, including vision, audition, gustation, olfaction, and somesthesia. 2 lec., 3 lab. (Fall quarter) *Leckart*

***503. Learning (4)**
Methods and basic data in areas of conditioning, discrimination learning, problem solving, habit formation, and retention. 2 lec., 3 lab. (Fall, Winter, and Spring quarters) *H. Kimmel*

***504. Human Learning (4)**
Learning principles established by research with human subjects. Lectures, demonstrations, readings, and research. Prereq: 503 or equiv. (Fall and Spring quarters) *Moates*

506. Psychology of Communication (4)
Process of communication; applications to the social sciences. (Fall quarter) *Klare*

***510. Motivation and Emotions (4)**
Dynamics of animal and human behavior; drives, desires, incentives; emotion in relation to motives. Prereq: perm. (Winter quarter) *H. Kimmel*

511. Perception (4)
Perception of time, space, motion, and social phenomena. Prereq: perm. (Winter quarter)

***512. Physiological Psychology (4)**
Relationships between integrated behavior and bodily processes in the intact organism. Prereq: perm. (Fall and Spring quarters)

***514. Comparative Psychology (4)**
Behavior of lower and higher organisms leading up to man. 2 lec., 3 lab. (Spring quarter) *Boice*

***515. Psychology of Individual Differences (4)**
Individual and group differences, including methodology, basic principles, and findings. Prereq: perm. (Fall quarter) *Bradshaw, Worden*

517. History of Psychology (3)
Prereq: perm. (Winter quarter)

518. Systems of Psychology I (2)
Philosophy of science in psychology; constructs, theory construction, and explanation in psychology. Prereq: perm. (Winter quarter) *Boice*

519. Systems of Psychology II (3)

Comparisons of contemporary psychological theories. Prereq: 518. (Spring quarter)
Boice

521. Intermediate Statistics For Behavioral Sciences (3)

Statistical inference and most commonly used tests of hypotheses involving normal curve, *t* test, chi-square, and *F* distributions. 4 lec., 1 lab. Prereq: perm. (Fall quarter) *Games*

522. Intermediate Correlation and Regression (3)

Product-moment correlation coefficients and estimates of these. Chi-square measures of relationship, partial correlations. Prereq: 521. (Winter quarter) *L. Waters*

523. Design and Analysis of Experiments (3)

Variance of independent groups and repeated-measures designs. Matching statistical analysis to experimental procedures. Three-dimensional designs. Prereq: 522 or Educ. 522. (Spring quarter) *Games*

526. Advanced Experimental Psychology (4)

Experimental design and techniques. Students carry out individual experiments. Prereq: 521. (Spring quarter) *H. Kimmel*

527. Attention (3)

Seminar on contemporary problems in area of attention. Prereq: 521, 526, or perm. *Leckart*

***532. Abnormal Psychology (4)**

Behavior disorders, their causes, and their effects on person, family, and society. (Spring quarter) *Koons*

***533. Psychology of Personality I (3)**

Development and organization of personality; evaluation of major theoretical viewpoints. Prereq: perm. (Fall quarter) *Russell*

***534. Psychology of Personality II (3)**

Continuation of 533. Research on personality structure, dynamics, and change. Prereq: 533. (Winter quarter) *Russell*

***536. Social Psychology (4)**

Behavior of man as influenced by group membership, with emphasis on the individual's interaction as a basis of change of motives, attitudes, and personality. Prereq: perm. (*Not open to graduate students in psychology.*) *Nickols*

537. Psychopathology I (3)

Theoretical and empirical literature on development of abnormal personality, neuroses, and

character disorders. Prereq: perm. (Fall quarter) *Koons*

538. Psychopathology II (3)

Continuation of 537. Special emphasis on psychoses, organic brain damage, and mental retardation. Prereq: 537. (Winter quarter) *Koons*

***541. Behavioral Measurement (4)**

Testing and measurement; basic criteria including objectivity, reliability, validity. Methods of test construction and validation, including questionnaire construction. Introduction to factor analysis. Prereq: 521 or Educ. 521 or equiv. Required of graduates who have not had either 242 or 341. (Winter quarter) *Crawford*

550. Clinical Psychology (5)

Role and functions of clinical psychologist. Diagnostic, assessment, and treatment procedures. Professional ethics, issues, and relationships. Includes a practicum in clinical installations. 2 lec., 3 practicum. (Fall quarter) *Kahn*

551. Counseling Psychology I (3)

Theories and techniques used in counseling with personnel, vocational, educational, and personal-social problems. Supervised counseling laboratory experience. Prereq: 541 or equiv., 532 or 537-538 or equiv. (Winter quarter) *Russell*

552. Counseling Psychology II (3)

Continuation of 551. Prereq: 551. (Spring quarter) *Russell*

561, 562. Seminar in Psychological Problems in Industry I, II (3, 3)

Selection, placement, motivation, development, and evaluation of employees; job analysis, interviewing, testing, rating, and attitude evaluation as related to worker satisfaction, fatigue, and productivity. Student may enroll in either 561 or 562 or in both courses in either order. Prereq: perm. (Fall and winter quarters) *Ferguson*

563. Human Factors in Industry (4)

Psychological factors in man-machine systems. Prereq: perm. (Spring quarter) *L. Waters*

564. Advanced Industrial Psychology (4)

Prereq: perm. (Fall and Spring quarters) *Ferguson*

573. Developmental Psychology (4)

Review of principles and research covering the development of human behavior. (Spring quarter) *Bradshaw*

***575. Psychology of Exceptional Children (4)**
Growth and development of nontypical children. Prereq: perm. (Fall and Spring quarters) *Bradshaw, Worden*

576. Programmed Instruction (4)
Use of programs and machines; principles and procedures in preparing programs; writing of objectives and frames for a trial program. Prereq: perm. (Winter quarter) *Klare*

603. Learning Theories (4)
Lectures and readings covering theoretical works in field of learning. Prereq: perm. (Winter quarter) *H. Kimmel*

604. Advanced Learning (4)
Major research and current theoretical trends in area of learning psychology. Particular emphasis on integration of findings in animal and human areas. Prereq: perm. (Winter quarter) *Bruning*

633. Advanced Theories of Personality I (3)
Ego psychology; drive, structure, ego autonomy, primary process, dreams. Prereq: 533. (Winter quarter) *Kahn*

634. Advanced Theories of Personality II (3)
Psychosocial, adaptive, and reality points of view. Cognitive styles, secondary process, secondary autonomy. Prereq: 633. (Spring quarter) *Kahn*

636. Advanced Social Psychology (4)
Major research and theoretical trends in social psychology; observational learning and social motivation. (Spring quarter) *Bruning*

637. Experimental Social Psychology (4)
Major theoretical and research trends, with emphasis on attitudes, social perception, and small-group behavior. (Spring quarter) *Nickols*

640. Practicum in Individual Study of Children (3)
Supervised experience in selecting and administering tests of children referred for individual study; collecting educational and developmental data and integrating findings in reports and recommendations. Prereq: 647 or with 647. (Fall quarter) *Corwin*

641. Individual Intelligence Testing I (3)
Theory, methods, practice, and results of intelligence tests. 2 lec., 1 lab. Prereq: 541. (Fall and Spring quarters) *Semans, Corwin*

642. Individual Intelligence Testing II (3)
Continuation of 641. Prereq: 641. (Winter and Summer quarters) *Semans, Corwin*

643. Psychodiagnostic Test Assessment I (3)
Use of tests for assessment of psychopathologic personality. Prereq: 641. (Fall quarter) *Koons*

644. Psychodiagnostic Test Assessment II (3)
Continuation of 643. TAT and Rorschach tests. Prereq: 643, and 551 or 537. (Winter quarter) *Koons*

646. Practicum in Psychodiagnosis (1-4)
Supervised practice in administration, interpretation, and reporting of psychodiagnostic tests. One credit must be taken concurrently with 644, others as desired. Prereq: 641. (Fall, Winter, and Spring quarters) *Kahn, Koons*

647. Individual Tests: Exceptional Children (3)
Special instruments and techniques for testing intelligence of exceptional children; supervised experience. 2 lec., 5 lab. Prereq: 641, 642. (Winter quarter) *Corwin*

652. Advanced Counseling Psychology (3)
Selected topics and research on counseling theory, practice, and professional issues. Prereq: 552. (Spring quarter) *Russell*

653. Counseling and Psychotherapy I (3)
Prereq: 537. (Fall quarter) *Pullen*

677. Practice of School Psychology (3)
Responsibilities and activities of school psychologist. Prereq: perm. (Fall quarter) *Corwin*

678. Internship in School Psychology (1-15)
Supervised experience in school psychology in public-school setting. Prereq: perm. Apply before March 1 for following September. Does not count toward degree credit. (Fall, Winter, and Spring quarters) *Corwin*

691. Research (1-4)
Prereq: perm.

695. Thesis (as recommended by dept.)

725. Advanced Regression (3)
Multiple-regression techniques as used in personnel prediction and analysis of data. Prereq: 523. (Fall quarter, alt. yrs.) *L. Waters*

726. Advanced Testing Principles (3)
Test theory, item analysis, reliability analysis, cross validation. Statistical considerations

of constructing, using, and interpreting tests. Prereq: 523. (Winter quarter, alt. yrs.) *L. Waters*

727. **Advanced Quantitative Methods (3)**
Factor analysis and advanced analysis-of-variance procedures. Prereq: perm. (Spring quarter, alt. yrs.) *Games, L. Waters*

728. **Psychological-Data Analysis by Computer (3)**

Review of psychological statistics; computer capabilities. Trend analysis, covariance, multiple regression, and advanced analysis of variance. Prereq: 523 and a course in FORTRAN. (Spring quarter) *Games*

745. **Psychodiagnostic Test Assessment III—Integration (5)**

Integrated personality evaluation from clinical testing. Evaluation of clinical cases and report writing. Prereq: 644. (Spring quarter) *Kahn*

753. **Counseling and Psychotherapy II (3)**
Theory and practice in counseling and psychotherapy with personal-adjustment cases. Prereq: 643, 653. (Winter quarter) *Snyder*

754. **Counseling and Psychotherapy III (3)**
Continuation of 753. Prereq: 753. (Spring quarter) *Snyder*

755. **Practicum in Counseling and Psychotherapy (1-3, max. 6)**

Supervised experience in counseling and psychotherapy. Prereq: 754 or with 754. *Snyder*

756. **Counseling-Psychology Practicum (3, max. 6)**

Experience in counseling persons in clinical agency or industrial setting. Prereq: 552, Educ. 522. (Winter and Spring quarters) *C. Waters*

757. **Group Psychotherapy (3)**
Theory and practice of group psychotherapy. Prereq: 653. (Fall quarter) *Pullen*

758. **Practicum in Group Psychotherapy (3, max. 9)**

Supervised experience in practice of group psychotherapy. Students must enroll for 6 or 9 consecutive hours: e.g., winter and spring; spring and summer; or winter, spring, and summer. Prereq: 753, 757. (Winter, Spring, and Summer quarters) *Pullen*

791. **Research in Psychology (1-6)**
Prereq: perm.

794. **Advanced Seminar in Psychology (2, max. 16)**
Prereq: perm.

895. **Dissertation (as recommended by dept.)**

PUBLIC ADDRESS

(See Communication and Comparative Arts)

QUANTITATIVE METHODS

(Minor only)

Greenwood (chairman), Holliday.

A graduate major in quantitative methods is not available. A minor may be developed in this area of study. To begin work in quantitative methods, the student must have completed basic courses satisfactory to the department.

500. **Quantitative Methods (3)**

Mathematical techniques as applied to business decisions dealing with certainty, risk, and uncertainty.

*503. **Statistical Quality Control (4)**

Application of sampling theory to industrial operations. Course in industrial statistics especially recommended for students interested in production control.

*541. **Business Cycles (4)**

Nature, causes, and theory of business cycle together with survey of techniques of description and control.

*545. **Forecasting (4)**

Theory of prediction of social data and theory of business forecasting with special reference to economic conditions and business cycle.

*550. **Recent Trends in Statistical Techniques (3)**

Application to business and economics, including input-output tables, quantified economic models, linear programming, and decision making.

555. **Statistics (4)**

Statistical methods used in business.

570. **Computer Science (3)**

Effect of computers on business management and organization.

600. **Reading in Quantitative Methods (4)**
Prereq: perm.

681. **Research in Quantitative Methods (4)**
Prereq: perm.

691. **Seminar in Quantitative Methods (4)**
Prereq: perm.

695. **Thesis (as recommended by dept.)**

RADIO-TELEVISION

(See Communication)

RUSSIAN

(See Modern Languages)

SCULPTURE

(See Art, Art History, and Comparative Arts)

SECONDARY EDUCATION

(See Education)

SOCIOLOGY AND ANTHROPOLOGY

Burkhardt, Dennis (chairman), Elliott (graduate committee chairman), Gurskin, Harlan, Hegazy, Hlad, Kuhre, Shamblin, Vazquez, Wood, Worstell, Webb.

A graduate major in sociology offers preparation for teaching, research, and advanced graduate training. Undergraduate preparation should include 20 quarter hours in sociology, at least 16 quarter hours in other behavioral sciences, and a course in statistics. Minimum requirements for the M.A. are as follows: 550; 501 and/or 552 to a total of 4 quarter hours; 680 (Thesis) 8 quarter hours; and one course in *each* of the following areas: history and theory of sociology, social organization and institutions, social psychology and collective behavior; and *one* course selected from the areas of demography and ecology, social disorganization and social problems, social welfare, anthropology; with electives to a total of 45 quarter hours, of which at least 6 hours in addition to thesis must be at the 600-level. A maximum of 12 quarter hours of graduate work in other disciplines may be counted toward the master's degree in sociology; advanced study in a foreign language pertinent to the student's research interests and future academic plans may be approved for this purpose by action of the graduate committee.

SOCIOLOGY***500. Modern Sociological Theory (4)**

Major sociological conceptual frameworks in 20th century. Prereq: perm.

***501. Readings in Sociology (1, max. 3)**

Independent directed readings designed to expand student's understanding in selected area of interest. Prereq: perm.

***511. Contemporary Social Movements (4)**

Organized movements resulting in major social changes: revolutionary, nationalistic, reform; religious agitation, leadership, ideology; case studies of typical movements. Prereq: perm.

***512. Public Opinion Processes (4)**

Attitudes and opinions in relation to formation of public opinion; political socialization and participations; social status, reference groups, decision-making, and role of mass media. Structure and process in the behavior of publics. Prereq: perm.

***513. Mass Communication (4)**

Personal and social functions of content in newspapers, radio, television, and film. Types of audiences and communication effects. Organization and control of mass media, and problems in evaluation. Prereq: perm.

***514. Small Group Behavior (3)**

Small group as unit of social systems; communication patterns, role definition, leadership, cohesion, etc.; review of current literature. Prereq: perm.

***515. Comparative Study of Socialization I (3)**

Infancy and Childhood. Early socialization processes in relation to cultural differences and social class position; emphasis on social psychological research in various disciplines as basis for comparative descriptions. Prereq: perm.

***516. Comparative Study of Socialization II (3)**

Adolescence and Maturity. Continuation of 515. Cross cultural and inter-class comparisons of social-psychological development in successive life-stages; social role expectations and behavior; personal identity and status; feeling, motivation, and problem-solving. Prereq: 515 or equiv., perm.

517. Measurement of Effect in Mass Communications (4)

Problems and methods of research designed to measure attitude, opinion, and behavioral change related to mass media content. Critiques of major studies; planning of study of interest to student. Prereq: 513, perm. (See also Comm. 671 and Journ. 690)

518. Propaganda Techniques and Objectives (4)

Use of mass communication to instigate behavioral change; psychological warfare, international political propaganda, coercive persuasion; individual and group susceptibility;

methods of propaganda analysis. Prereq: 512, 513, or equiv., perm.

***520. Social Stratification (4)**

Study of social and economic classes, castes, and other social strata; their origin, change, and correlates in other spheres of society. Prereq: perm.

***521. Sociology of Organization (4)**

Organization and structure of social groups. Basic cultural patterns of economic, kinship, and other institutions. Integration and disintegration of social groups and institutions. Prereq: perm.

***522. Urban Sociology (4)**

Historical development and recent emergence of the city as dominant feature of modern social life. Demographic and ecological patterns and social organization of urban region. Prereq: perm.

***523. Industrial Sociology (4)**

Analysis of interrelationship between the industrial and social order. Social organization and processes within the formal and informal structure of the industrial unit. Prereq: perm.

***524. Political Sociology (4)**

Social and cultural basis of influence, power, and authority. Informal aspects of political process in groups and institutions other than government. Prereq: perm.

***526. Rural Sociology (4)**

Rural population, community, and institutions in America and other societies. Historical developments and current trends. Rural life organizations and movements. Prereq: perm.

***527. The American Family System (4)**

Evolution of the American family from the colonial to the present time. Analysis of structural and functional trends in light of theory and research. Prereq: perm.

***528. Comparative Study of Marriage and the Family (4)**

Intra-cultural and cross-cultural differences and similarities in marriage patterns and family types; their social and cultural determinants and consequences, and their significance for family life. Prereq: perm.

***530. Criminology (4)**

Theories and research in criminal behavior; critical review of crime statistics. Prereq: perm.

***531. Juvenile Delinquency (4)**

Causes and consequences of delinquent behavior among juveniles. Prereq: perm.

***532. Corrections (4)**

Analysis of delinquency and crime correctional techniques and facilities; theoretical foundations of various correctional approaches. Field trip. Prereq: 530 or 531, perm.

***533. Sociology of Deviant Behavior (4)**

Major types of deviant behavior: criminality, suicide, drug addiction, and mental disorders. Prereq: perm.

***540. Population Theories (4)**

Major theoretical frameworks in population analysis, how they account for changes in fertility, mortality, and migration. Impact of these changes on human society. Prereq: perm.

550. Social Research Methods (4)

Analysis of the process of sociological research in terms of problem definition, research design, data sources, and methods of data analysis. Prereq: perm.

***552. Research Problems in Sociology (2, max. 6)**

Individual research in specific problem areas in which student has demonstrated ability and interest. Prereq: 550 and written perm. of instructor prior to registration.

600-50 Graduate Seminars (2-4, max. 12)

A critical examination of selected topics in sociology in the areas listed below:

600. Theory

610. Social Psychology and Collective Behavior

620. Social Organizations and Social Institutions

630. Social Disorganization and Social Problems

640. Demography and Ecology

650. Research Methodology

Prereq: perm.

625. Family and Community (4)

Analysis of the family system vis-a-vis economics, stratification, education, and other social systems. Impact of migration, urbanization, and social change in general on family structure and functioning. Treatment of American family as a typical case.

680. Thesis (as recommended by dept.)

Prereq: 550 and 501 or 552, or equiv., perm.

ANTHROPOLOGY***570. Folk Communities (4)**

Comparative study of village communities; peasantry as an historical phenomenon; folk community as embodiment of culture in various societies. Prereq: perm.

***571. Readings in Anthropology (1)**

Supervised reading in various fields of anthropology: linguistics, physical anthropology, social anthropology, and archeology. Prereq: perm.

***572. Cultural Contacts (4)**

Impact of one culture upon another, agents of cultural contact, and subsequent cultural change. Prereq: perm.

***573. Culture and Personality (4)**

Personality development by virtue of individual's membership in enduring groups whose members follow socially standardized ways of acting, thinking, and feeling. Prereq: perm.

***575. Cultural Change in Southeast Asia (4)**

Contemporary processes of change in traditional and communal patterns in mainland and island regions and differential impact of change upon various groups, personalities, and social relationships. Prereq: perm.

670. Seminar in Anthropology (2-4)

Critical examination of selected topics in anthropology. Prereq: perm.

SOCIAL WELFARE***590. Social Work (4)**

Social work as one helping profession and three methods of social work practice: group work, case work, and community organization. Prereq: perm.

SPANISH

(See Modern Languages)

**SPEECH,
SPEECH PATHOLOGY
SPEECH SCIENCE**

(See Communication)

STUDENT PERSONNEL

(See Education)

SYSTEMS ENGINEERING

(See Engineering)

TELEVISION

(See Communication)

TEXTILES

(See Home Economics)

THEATER

(See also Comparative Arts)

Abbott, Birner, Conover, Gaffney, Hahne, Howard, Lacy, Lane, McGraw, Morrison, O'Shaughnessy, Schmunk, Wagner, Walker (acting director), Weiner (graduate committee chairman), Winters.

The School of Theater offers programs leading to Master of Arts and Master of Fine Arts degrees. Graduate candidates are expected to participate in the production activities of the school in supplementation and extension of their academic experiences. Demonstrable proficiency in fundamental production and performance fields is expected. Students will be required to demonstrate a satisfactory grasp of basic skills and academic preparation upon entering the school or to make up any deficiencies in addition to normal requirements.

The work of the school is centered in the Speech Building, housing a comfortable and well equipped proscenium theater, a small studio-classroom theater, and related facilities for production work. A second theater, incorporating a thrust stage and capable of modification for use in various configurations is planned for inclusion in the new television-theater building to be constructed on an adjoining site.

The Master's Degree

Applicants for admission must possess a baccalaureate degree from an accredited college or university and present an academic background equivalent to a theater or speech/drama major, normally including a minimum of 24 semester hours, or 36 quarter hours, in theater and closely related courses. The student must have a 2.75 average for all course work attempted, or 2.50 with a 3.00 in his final two undergraduate years, and sufficient preparation to qualify for graduate courses to be included in the major and minor areas. Any deficiencies must be made up by taking appropriate undergraduate courses without graduate credit, or graduate courses in addition to normal requirements.

It is expected that each candidate will have a firm grounding in theater history and dramatic literature, as well as demonstrable proficiency in fundamental production techniques, or that coverage of these areas will be included in his graduate program. Students

will be tested or otherwise required to demonstrate a satisfactory grasp of basic areas upon outside of the school.

Throughout the program the student will be observed and guided by the faculty, and his progress will be formally reviewed at periodic intervals. At the end of any quarter he may be recommended for transfer to another sequence or degree program within the school, required to modify his program, or denied further enrollment as a degree candidate in the school.

Each graduate student will take 500, at the earliest opportunity after enrolling. With the counsel of his adviser, he selects a major sequence and, as appropriate to his needs and career goals, a minor field either within or outside of the School.

Master of Arts

The M.A. degree requires a minimum of 45 quarter hours beyond the baccalaureate degree, including 500, plus thesis, and a residence period of not less than four quarters. The major sequence of not less than 30 hours may be chosen to emphasize theater history and literature, acting and directing, design and technical production, or children's drama. A minor of not less than 12 hours may be chosen in a second area within the school or in a related outside field. The thesis will be a research study.

Master of Fine Arts

The M.F.A. degree requires a minimum of 60 quarter hours beyond the baccalaureate degree, plus a thesis or a minimum of 12 additional credits in lieu of the thesis, and a minimum residence period of six quarters. The decision as to whether the student will submit a thesis or appropriate graduate credits will be made by the faculty upon recommendation of the adviser.

The major field will be selected from one of the following pre-professional sequences: acting, directing, design and technical production, playwriting, and children's drama. The major will consist of 30 to 42 hours of credit in the field of concentration and closely related theater courses. The minor field may be chosen in another theater area, normally in theater history and literature unless the student's background already includes sufficient coverage, or in an appropriate area outside the school, such as communication, radio-television, English, or comparative arts.

Sufficient elective credits will be added to the major and/or minor to bring total course hours to 60. The thesis requirement will normally be met by accomplishing 12 credits in 695 or in approved non-thesis courses.

Following are the special requirements of major sequences:

Acting

Admission to the pre-professional sequence in acting is by audition only. At the end of each quarter the student will be notified whether he may proceed into the next level. Minimum course requirements, in addition to 500, include: major, 36 credits, including 30 in 510, 515, 610, or 613; minor, 15 credits in theater history and literature courses or in appropriate areas within or outside the school.

Design and Technical Production

Admission to this sequence is granted only after submission of a design portfolio and/or personal interview with the design staff. Emphasis may be placed on scenery, costume, or lighting design, but each candidate must demonstrate proficiency in all fields. Minimum course requirements, in addition to 500, include: major, 30 credits, including 24 in design/technical production courses, with at least three in scenic, costume, and lighting design; minor, 15 credits in theater history and literature or in appropriate areas within or outside of the School.

Directing

Admission to the sequence is on the basis of personal interview and/or examination. The student's progress will be carefully monitored, and he will be permitted to continue only on the basis of demonstrated aptitude and accomplishment. Minimum course requirements, in addition to 500, include: major, 36 credits, including 24 in directing, acting, and closely related theater courses, and 12 in theater history and literature; minor, 15 credits in appropriate related fields.

Playwriting

Students are accepted only after submission of representative sampling of previous creative writing and/or personal interview. Continuation in the program is dependent upon satisfactory progress in development of dramatic writing skills and mastery of critical concepts. Minimum course requirements, in addition to 500, include: major, 42 credits, including 30 in dramatic and/or creative writing and dramatic literature and criticism, and 12 in theater history; minor, 12 credits in appropriate related fields.

Children's Drama

The sequence is planned to include substantial course work and laboratory experience in both children's theater and creative dramatics. Students are expected to achieve a high level of proficiency in the direction of each type of activity. Minimum course requirements, in addition to 500, include: major,

42 credits including 30 in children's drama and theater arts production courses, and 12 in theater history and literature.

500. Introduction to Graduate Study (3)

Professional literature and conduct of research in theater arts. 3 lec. *Weiner*

***502. Theater Management (3)**

Management in the performing arts. 3 lec. *McGraw*

***505. Theater Administration (3)**

Organization and administration of educational, community, and resident theater. 3 lec. *Morrison*

***510A,B,C. Advanced Rehearsal and Performance (18) (6 per quarter)**

Intensive studio practice in performing advanced roles. 15 recit. Prereq: perm. *Wagner*

***515. Styles in Acting (3)**

Acting in relation to form and content of pre-modern and non-realistic drama. 2 lec., 3 lab. Prereq: perm. *Conover, Gaffney, McGraw*

***516. Advanced Stage Speech (3)**

Vocal action for classical drama and dialects. 1 lec., 4 lab. Prereq: perm. *Hahne, Lane*

***520. Direction of Oral Interpretation (3)**

Group interpretation forms: readers theater, chamber theater, and choral reading. 4 lec. Prereq: perm. *Conover*

***530. Technical Direction (3)**

Role and responsibilities of the technical director. 3 lec. Prereq: perm. *Lacy, Abbott, Winters*

***531. Advanced Lighting (3)**

Light as an element of design. 4 lec. Prereq: perm. *Abbott*

***534. Advanced Scene Design (3)**

Scene design styles of pre-modern drama; theory and practices. 4 lec. *Lacy, Winters*

***535. History of Costume (4)**

Development of costume from the pre-Greek era; emphasis on clothing as a reflection of Western cultural development. 4 lec. Prereq: perm. *Schmunk*

***536. Advanced Costume Design (3)**

Advanced problems and projects in theatrical costume. 2 lec., 2 lab. Prereq: perm. *Schmunk*

***540. Advanced Children's Theater (3)**

Application of principles and practices to advanced production problems. 3 lec./recit. Prereq: perm. *Birner*

***541. Practicum in Creative Dramatics (3)**

Supervised practice in leading projects in creative dramatics. 2 lec., 2 lab. Prereq: perm. *Birner*

***545. Children's Drama and the Arts (3)**

Problems and potentials of approaching the creative arts for children through drama activities. 3 lec./recit. Prereq: perm. *Birner*

***550. Playwrights Workshop (3, max. 9)**

Practical workshop study and production of plays written by students. Prereq: perm. *Howard, Walker*

***555. Dramatic Criticism I (3)**

Principles of dramatic criticism from Aristotle to modern theater. 3 lec. Prereq: perm. *Conover, Howard, Walker*

***556. Dramatic Criticism II (3)**

Modern dramatic criticism from the time of Ibsen to the present. 3 lec. Prereq: 555 or perm. *Conover, Howard, Walker*

***560. Directing Pre-Modern Drama (3)**

Principles and techniques of staging pre-modern drama. 3 lec. Prereq: perm. *Conover, Lane, O'Shaughnessy*

***561. Styles of Directing (3)**

Advanced theories and practices of directing, emphasis on non-realistic drama. 3 lec. Prereq: perm. *Conover, McGraw, O'Shaughnessy*

***570. Greek Theater and Drama (3)**

3 lec.

***571. Roman and Medieval Theater (3)**

3 lec.

***572. Renaissance Theater and Drama (3)**

3 lec. *Conover*

***573. Restoration and 18th Century Theater (3)**

3 lec.

***574. Baroque European Theater (3)**

3 lec. *Walker*

***575. 19th Century European Theater (3)**

3 lec.

***576. Contemporary Theater (3)**

3 lec.

***577. American Theater and Drama (3)**

3 lec. *McGraw*

605. Directed Instruction (1-3, max. 9)

Supervised practice in instructing. Arr. Prereq: perm.

610. Advanced Problems in Acting and Performance (3-12, max. 12)

Prereq: perm. *Wagner*

613. Internship in Acting (3-12)

Prereq: Acting major and perm.

620. Seminar in Oral Interpretation (3)

Studies in theory, history, and advanced problems of oral interpretation. Prereq: perm. *Conover*

630. Seminar in Technical Direction (3)

Prereq: perm. *Lacy, Winters*

631. Seminar in Lighting (3)

Prereq: perm. *Lacy, Abbott*

633. Internship in Design or Technical Production (6-12)

Prereq: Design/technical production major and perm.

634. Seminar in Scene Design (3)

Prereq: perm. *Lacy, Winters*

636. Seminar in Costume Design (3)

Prereq: perm. *Schmunk*

640. Seminar in Children's Theater (3)

Advanced problems in children's theater production, operation, and management. Prereq: 540 or perm. *Birner*

641. Seminar in Creative Dramatics (3)

Advanced problems in creative dramatics leadership. Prereq: 541 or perm. *Birner*

642. Seminar in Esthetics of Child Drama (3)

Esthetic and behavioral theories as applied to theater with and for children. Prereq: 545 or perm. *Birner*

650. Seminar in Dramatic Writing (3-6, max. 6)

Prereq: perm. *Howard, Walker*

660. Seminar in Directing (3)

Prereq: 560, 561, or perm.

663. Internship in Directing (3-12)

Prereq: perm.

670. Seminar in Theater History (3)

May be repeated as topic changes.

675. Seminar in Dramatic Criticism (3)

May be repeated as topic changes.

695. Thesis (as recommended by dept.)

698. Individual Projects (1-12, max. 12)

Prereq: perm.

699. Independent Readings (1-12, max. 12)
Prereq: perm.

ZOOLOGY

Elliott, Hagerman, Heck, Jones, Lawrence, Maier (graduate committee chairman), McQuate, Moore, Peterson (chairman), Pierce, Romoser, Rovner, Seibert, Wilson.

For admission to graduate study in zoology a student must have completed at least 18 undergraduate hours in biological sciences. At least one quarter each of genetics, anatomy, physiology, and organic chemistry, either at the undergraduate or graduate level, is required for the master's degree. Undergraduate courses attempted by graduate students at Ohio University must be passed with at least a grade of C.

All graduate students in the department are expected to complete 48 quarter hours in zoology and approved related areas, including the credit given in seminar, research, and thesis. For certain areas, additional undergraduate courses may be required (e.g., calculus, statistics).

Research for the master's degree may be done in the following areas: bacteriology, biochemistry, ecology, embryology, endocrinology, entomology, ethology, genetics, immunology, invertebrates, ornithology, parasitology, physiology, protozoology, vertebrate zoology.

***504. Comparative Vertebrate Anatomy — Mammalian (6)**

Anatomy of mammals with particular emphasis on the cat. 3 lec., 6 lab. (Fall quarter) *Elliott, Allen*

***506. Vertebrate Embryology I (3)**

Early stages of vertebrate development from gametogenesis to primary organ rudiment formation. 2 lec., 3 lab. (Winter quarter) *Peterson*

***507. Vertebrate Embryology II (3)**

Development of organ systems in representative vertebrate types; laboratory emphasis on chick and pig. 2 lec., 3 lab. Prereq: 506. (Spring quarter) *Peterson*

***509. Histology (6)**

Fundamental body tissues of vertebrates followed by histology of body system. 3 lec., 6 lab. (Winter quarter) *Heck*

***511. General Bacteriology (5)**

Properties of bacteria and other protists and their importance in our environment. Laboratory training in common bacteriological methods. 3 lec., 6 lab. (Not open for graduate credit to majors in bacteriology.) (Fall quarter) *Maier*

***512. Microbiological Techniques (4)**

Use of bacteriological techniques and equipment; information retrieval. 2 lec., 6 lab. arr.
Prereq: 510. (Winter quarter) *Maier*

***513. Pathogenic Bacteriology (5)**

Microorganisms in relation to disease. Disease manifestations, diagnostic and control methods; some aspects of immunity. 3 lec., 6 lab.
Prereq: 511. (Winter quarter) *Lawrence*

***517. Advanced General Bacteriology (6)**

Cell structure, staining, sporulation, growth, variation, biochemical tests. Extensive assigned readings in current literature. 3 lec., 6 lab.
Prereq: 511. (Fall quarter) *Lawrence*

***518. Contemporary Microbiology (1-3)**

Lectures and readings on selected topics of contemporary importance not otherwise available. Prereq: perm. (on demand)

***519. Bacterial Physiology (6)**

Nutrition, function, and metabolism of bacteria; pertinent laboratory work illustrating fundamental principles and various experimental techniques. 3 lec., 6 lab. Prereq: 511. (Spring quarter) *Maier*

***527. Molecular Genetics (3)**

Gene action and fine structure; biochemistry of heredity, cytoplasmic inheritance. (Spring quarter, alt. yrs.) *McQuate, Cohn*

***528. Human and Population Genetics (3)**

Genetics of man; normal and abnormal chromosomology; human biochemical genetics; genes in individuals, kindreds, populations and evolution. (Winter quarter, alt. yrs.) *Pierce*

***530. General Invertebrates I (5)**

Structural, functional and systematic relationships among acoelomates and molluscs. 3 lec., 4 lab. (Winter quarter)

***531. General Invertebrates II (5)**

Structural, functional and systematic relationships among the coelomates. 3 lec., 4 lab. Prereq: 530. (Spring quarter)

***533. General Protozoology (5)**

Structure, life histories, physiology and relationships of representatives from all major groups of protozoa. 3 lec., 5 lab. Prereq: perm. (Fall quarter, alt. yrs.) *Peterson*

***535. General Entomology (5)**

Morphology, physiology, and general biology of insects. 2 lec., 6 lab. (Fall quarter) *Romoser*

***536. Insect Morphology and Systematics (5)**
Systematics and internal and external struc-

ture of insects. 2 lec., 6 lab. Prereq: 535. (Winter quarter, alt. yrs.) *Romoser*

***537. Medical Entomology (2)**

Relationship of insects and related arthropods to human disease. Prereq: perm. (Spring quarter, alt. yrs.) *Romoser*

***538. Insect Physiology (5)**

Maintenance systems, control systems, reproduction, growth, development. 2 lec., 6 lab. Prereq: 535, perm. (Winter quarter, alt. yrs.) *Romoser*

***541. Parasitology (6)**

Etiology of human parasites, their transmission and prevention. 3 lec., 6 lab. (Spring quarter) *Heck*

***542. Helminthology (6)**

Parasitic worms, physiology, classification, life histories, and host response. 3 lec., 6 lab. (Fall quarter, alt. yrs.) *Heck*

***546. Comparative Physiology (6)**

Homeostatic mechanisms and systems in organisms and their relation to fundamental chemical and physical events in cells: ionic and water balance; cardio-vascular regulation and function; role of reflex arcs and autonomic nervous system controls; respiratory mechanisms; evolution of various systems. 3 lec., 6 lab. Prereq: perm. (Fall quarter) *Wilson*

***548. Cellular Basis of Animal Behavior (5)**

Cellular basis of sensory reception, information transmission, integration, special and normal effectors, orientation and behavioral patterns; neuroendocrine functions and controls. 2 lec., 6 lab. Prereq: perm. (Winter quarter) *Wilson*

***550. Principles of Endocrinology (5)**

Endocrine control of vertebrate metabolism and reproduction. 3 lec., 4 lab. Prereq: perm. (Fall quarter) *Jones*

***551. Advanced Endocrinology (5)**

Endocrine control of vertebrate digestion, respiration and homeostasis. 2 lec., 6 lab. Prereq: 550. (Fall quarter, alt. yrs.) *Jones*

552. Contemporary Endocrinology (1-3)

Discussions of current research in vertebrate endocrinology. Prereq: 550 or 551, or perm. (on demand) *Jones*

***554. Physiology of Excitable Cells (3)**

Basic mechanisms involved in impulse conduction in nerve and muscle. Electronic and radioisotope techniques. Prereq: calculus. (Fall quarter) *Moore*

***555. Membrane Biophysics (3)**

Basic processes involved in membrane permeation; current theoretical models. Prereq: calculus. (Winter quarter) *Moore*

***556. Neurophysiology Lecture (3)**

Functional aspects of the central nervous system of organisms; emphasis on visual and auditory pathways in mammals. Prereq: perm. (Spring quarter, alt. yrs.) *Wilson, Moore*

***557. Neurophysiology Laboratory (3)**

Use of advanced electronic and surgical techniques to investigate neurophysiological phenomena, with special reference to mammals. 6 lab. Prereq: 556 or with 556. (Spring quarter, alt. yrs.) *Wilson*

***558. Biophysical Chemistry (3)**

Physical-chemical principles as applied to the cell and macromolecular solutions. Thermodynamic and kinetic considerations of cellular energy exchanges and utilization. Prereq: 546 or equiv., or perm. (Spring quarter, alt. yrs.) *Moore, Wilson*

***560. Contemporary Physiology (1-3)**

Studies - seminars - discussions in physiology with emphasis on current literature and research methods. Arr. Prereq: perm. (Fall, Winter, and Spring quarters)

***563. Biochemistry Lecture I (3)**

Biochemical principles and relations of cell structures to metabolic and synthetic activity. Metabolism of carbohydrates, proteins, fats; principles of enzyme activity, kinetics, and organization. Prereq: organic chemistry. (Fall quarter)

564. Biochemistry Lecture II (3)

Protein synthesis and structure; enzyme kinetics and thermodynamics; amino acid metabolism. Prereq: 563, physical chemistry. (Winter quarter)

565. Biochemistry Lecture III (3)

Carbohydrate and lipid metabolism. Prereq: 564. (Spring quarter)

567. Biochemistry Laboratory (3)

Chromatography, pH and buffers, electrophoresis, principles of protein isolation, purification. Quantitative methods for assaying biological compounds. Enzyme studies. 7 hrs. lab. Prereq: 563 or with 563; physical chemistry. (Winter quarter)

569. Contemporary Biochemistry (1-3)

Current literature, research methods, and problems. Arr. Prereq: perm. (Fall, Winter, and Spring quarters)

***570. Biology of Vertebrates (5)**

Vertebrate biology, other than birds; identification of museum collection with emphasis on Ohio specimens; collecting and preserving techniques. 3 lec., 4 lab. (Fall quarter) *Seibert*

***576. Animal Ecology (3)**

Relationships between animals and animal populations and external and internal environments. Prereq: perm. (Winter quarter, alt. yrs.) *Seibert*

***579. Evolution (3)**

Evidence for, and current ideas and research on, mechanisms of organic evolution. (Winter quarter) *Seibert*

580. Biological Research Methods (2)*a. Microscopy and Photomicrography**

Application of microscope optical systems and photography to biological investigation. Arr. Prereq: perm. (Spring quarter, alt. yrs.) *Peterson*

b. Optical Techniques

Colorimetric, photometric, spectrophotometric, and spectroscopic methods. Infrared, UV, and visible instrumentation. Polarographic and rotatory dispersion techniques. Light scattering instrumentation. Arr. Prereq: perm.

c. Isolation-Separation of Macromolecules

Isolation, preparation, and purification of selected biological macromolecules using sedimentation and density gradient centrifugation, isotopes, counter-current extraction, chromatography and electrophoretic methods. Arr. Prereq: perm.

***590. Seminar in Zoology (1)**

Research or readings in current literature. (Required for graduate students.) (Fall, Winter, and Spring quarters)

618. Bacteriological Reviews (3)

Readings and discussions of advanced concepts in major subdivisions of microbiology. Arr. Prereq: perm. (Winter quarter) *Lawrence, Maier*

629. Genetics Colloquium (2)

Current topics and modern concepts in genetics. Arr. Prereq: perm. (Spring quarter, alt. yrs.) *McQuate, Pierce*

685. Research in Biology (as recommended by dept.)

Research in various zoological fields under supervision of staff member. Prereq: perm.

695. Thesis (as recommended by dept.)

Prereq: perm.

785. Research (as recommended by dept.)

Doctoral research in selected fields. Prereq: perm.

895. Dissertation (as recommended by dept.)

THE OHIO UNIVERSITY PRESS
Cutler Hall, Athens, Ohio 45701

Please send me the books checked below:

NEW AND FORTHCOMING

___ Eca de Queiroz, THE CITY AND THE MOUNTAINS (<i>July</i>)	-----\$4.50
___ Clyde Ryals, FROM THE GREAT DEEP (<i>August</i>)	-----\$5.50
___ Stanley Grean, SHAFTESBURY'S PHILOSOPHY OF RELIGION AND ETHICS (<i>September</i>)	-----\$7.50
___ Edward Jenks, THE BOOK OF ENGLISH LAW (<i>November</i>)	-----\$7.00
___ Max F. Schulz, ed., ESSAYS IN AMERICAN AND ENGLISH LITERATURE— PRESENTED TO BRUCE ROBERT McELDERRY, JR. (<i>December</i>)	-----\$6.50
___ J. L. Moulton, A STUDY OF WARFARE IN THREE DIMENSIONS (<i>December</i>)	-----\$6.50
___ Edward Miller, PRINCE OF LIBRARIANS: <i>The Life and Times of Antonio Panizzi of the British Museum</i> (<i>October</i>)	-----\$7.50
___ Oliver Warner, ADMIRAL OF THE FLEET (<i>December</i>)	-----\$7.50
___ Galway Kinnell, trans. Yves Bonnefoy, ON THE MOTION AND IMMOBILITY OF DOUVE (<i>February</i>)	-----\$5.50
___ Ohmer Milton and Edward J. Shoben, eds., LEARNING AND THE PROFESSORS (<i>March</i>)	-----\$5.50
___ Lev Shestov, POTESTAS CLAVIUM (<i>March</i>)	-----\$9.00
___ Eric Dluhosch, THE ARCHITECTURAL PLANNING OF ST PETERSBURG: <i>Its Development in the 18th and 19th Centuries</i> (<i>March</i>)	-----\$15.00

EXAMINATION COPIES

Requests should be made on your college, university, or school letterhead and should include the following information: name of course for which the book will be considered; enrollment; and your department affiliation. A card and invoice will accompany your examination copy shipment. If you "adopt" one of our on-approval books for course use (meaning there will be a minimum bookstore order of 10 copies), please notify us on the card and keep the book as a complimentary desk copy. If you decide not to use it, you may purchase the book or return it to us for cancellation of charges.

BACKLIST

___ Barnard, THE MYTHMAKERS	-----\$ 5.50
___ Belaval, PHILOSOPHERS AND THEIR LANGUAGE	-----\$ 4.00
___ Carmi, THE BRASS SERPENT: <i>Poems</i>	-----\$ 4.00

—Cua, REASON AND VIRTUE: <i>A Study in the Ethics of Richard Price</i>	—\$ 5.00
—de Queiroz, THE MANDARIN AND OTHER STORIES	—\$ 4.00
—Easton, HEGEL'S FIRST AMERICAN FOLLOWERS: <i>The Ohio Hegelians</i>	\$ 8.50
—Frost, THE CIRCUS VILLAINS: <i>Poems</i>	—\$ 4.25
—Gilmore, CAUDILLISM AND MILITARISM IN VENEZUELA	—\$ 5.00
—Gustavson, THE INSTITUTIONAL DRIVE: <i>A Study in Pluralistic Democracy</i>	—\$ 5.00
—Hemley, DIMENSIONS OF MIDNIGHT	—\$ 6.00
—Jacobsen, THE ANIMAL INSIDE: <i>Poems</i>	—\$ 4.50
—Kaplan, THE PASSIVE VOICE: <i>An Approach to Modern Fiction</i>	—\$ 5.50
—King, STUDIES IN SIX SEVENTEENTH CENTURY WRITERS	—\$ 6.50
—Loggins, ANDRE CHENIER: <i>His Life, Death and Glory</i>	—\$ 5.00
—McCloskey & Murphy, THE LATIN POETRY OF GEORGE HERBERT: <i>A Bilingual Edition</i>	—\$ 5.00
—Madison, NOTES OF DEBATES IN THE FEDERAL CONVENTION OF 1787	—\$10.00
—Malaparte, THOSE CURSED TUSCANS	—\$ 4.95
—Mazzaro, CHANGING THE WINDOWS: <i>Poems</i>	—\$ 4.25
—Miller, A CONSERVATIVE LOOKS AT COOPERATIVES	—\$ 5.00
—Neatby, CONQUEST OF THE LAST FRONTIER	—\$10.00
—Scamehorn, THE BUCKEYE ROVERS IN THE GOLD RUSH: <i>An Edition of Two Diaries</i>	—\$ 5.00
—Schelling, ON UNIVERSITY STUDIES	—\$ 5.00
—Shalian, trans. DAVID OF SASSOUN: <i>The Armenian Folk Epic in Four Cycles</i>	—\$10.00
—Shestov, ATHENS AND JERUSALEM	—\$ 7.50
—Stone, THE BATTLE AND THE BOOKS: <i>Some Aspects of Henry James</i>	—\$ 5.00
—Stone, VOICES OF DESPAIR: <i>Four Motifs in American Literature</i>	—\$ 5.00
—Timko, INNOCENT VICTORIAN: <i>The Satiric Poetry of Arthur Hugh Clough</i>	—\$ 5.00

Orders will be sent post free. Payment must accompany orders.
Prices and publication dates are subject to change without notice.

Name _____

Address _____

City _____ State _____ Zip _____



OHIO UNIVERSITY BULLETIN
OHIO UNIVERSITY Athens, Ohio 45701

Return Requested

SECOND CLASS POSTAGE PAID
AT ATHENS, OHIO 45701